UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF:	)	
	)	
CHARNOCK MTBE CONTAMINATION SITE	)	
	)	
Shell Oil Company,	)	
Shell Oil Products Company and	)	
Equilon Enterprises, LLC,	)	**EPA DOCKET NO.**
	)	**RCRA 7003-09-2000-0003**
	)	
	)	
RESPONDENTS	)	
	)	
Proceeding under Section 7003 of	)	
the Resource Conservation and	)	
Recovery Act, 42 U.S.C. Section	)	
6900, et seq., as amended.	)	
	)	

ADMINISTRATIVE ORDER ON CONSENT
FOR INITIAL REGIONAL RESPONSE

TABLE OF CONTENTS

ATTACHMENTS

I. INTRODUCTION

1. This Administrative Order on Consent ("Consent Order")is entered into voluntarily by the United States Environmental Protection Agency (EPA) and Respondents Shell Oil Company ("Shell"), Shell Oil Products Company ("Shell Products"), and Equilon Enterprises, LLC ("Equilon"), (collectively "Respondents"). The Consent Order concerns, inter alia, the performance of regional investigation and restoration measures, and the preparation of analyses of alternatives for both water replacement and interim restoration activities, as described in Attachment A, the Scope of Work ("SOW"), which is hereby incorporated by this reference.

2. By providing a copy of this Consent Order to the California Regional Water Quality Control Board, Los Angeles Region ("Regional Board"), EPA is notifying the State of California ("State") that this Order is being issued. This action is part of a joint enforcement action being conducted by EPA and the Regional Board (collectively "the Agencies").

3. As noted in Section XXII (Disclaimer), Respondents do not necessarily agree to EPA's Findings of Fact and Conclusions of Law as presented in this Consent Order, or with Paragraph 7 of Section II (Jurisdiction). Rather Respondents enter into this Consent Order in the interest of settlement. As provided herein, Respondents have agreed to jointly address releases of methyl tertiary-butyl ether ("MTBE") and other gasoline constituents in the Charnock Sub-Basin, as provided in the SOW.

4. Respondents have begun, under the oversight of the Agencies, to address contamination at their individual facilities, including investigation of the MTBE and other gasoline constituent contamination in the Charnock Sub-Basin. Respondents have begun to remediate the release from one of their individual facilities within the Charnock Sub-Basin. Respondents have also voluntarily performed Regional Response activities in cooperation with the City of Santa Monica ("City"), the Southern California Water Company ("SCWC"), the Regional Board and EPA.

5. EPA and the Respondents acknowledge that this Consent Order has been negotiated by the Parties in good faith, that implementation of the Work required by this Consent Order will expedite the cleanup of the Charnock Sub-Basin and avoid litigation between the Parties, and that this Consent

Order is fair, reasonable, and in the public interest.

II. JURISDICTION

6. This Consent Order is issued under the authority vested in the Administrator of EPA by Section 7003 of the Resource Conservation and Recovery Act (also known as the Solid Waste Disposal Act), 42 U.S.C. Section 6973, which authority has been duly delegated to the Director of the Waste Management Division of EPA Region IX.

7. Respondents agree to undertake all actions required by the terms and conditions of this Consent Order. In any action by EPA or the United States to enforce the terms of this Consent Order, Respondents consent to and agree not to contest the authority or jurisdiction of the Director of the Waste Management Division or other duly delegated official to issue or enforce this Consent Order, and agree not to contest the validity of this Order or its terms.

III. PARTIES BOUND

8. This Consent Order shall apply to and be binding upon EPA and shall be binding upon the Respondents, their agents, successors, assigns, officers, directors and principals. Respondents are jointly and severally responsible for carrying out all actions required of them by this Consent Order. The signatories to this Consent Order certify that they are authorized to execute and legally bind the parties they represent to this Consent Order. No change in the ownership or corporate status of the Respondents or of the Source Site facilities shall alter Respondents' responsibilities under this Consent Order.

9. The Respondents shall provide a copy of this Consent Order to any subsequent owners or successors before a controlling interest in ownership rights or stock or assets or in Respondents' site listed in Attachment B (Source Site Facilities) are transferred. Respondents shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants that are retained to conduct any work performed under this Consent Order, within 14 days after the Effective Date of this Consent Order or the date of retaining their services, whichever is later. Respondents shall condition any such

contracts upon satisfactory compliance with this Consent Order. Notwithstanding the terms of any contract, Respondents are responsible for compliance with this Consent Order and for ensuring that their subsidiaries, employees, contractors, consultants, subcontractors, agents and attorneys comply with this Consent Order.

IV. STATEMENT OF PURPOSE

10. In entering into this Consent Order, the objectives of EPA and the Respondents (collectively "the Parties") are to require Respondents to perform initial regional response activities within the Charnock Sub-Basin necessary to restore the Charnock Sub-Basin to its beneficial use as a drinking water supply and to remediate the MTBE and other gasoline contaminants within the Charnock Sub-Basin Investigation Area.

11. The activities conducted under this Consent Order are subject to approval by EPA and shall provide all appropriate and necessary information for the analysis of alternatives for interim provision of municipal drinking water and for the selection of interim regional restoration activities. The activities conducted under this Consent Order shall be conducted in compliance with all applicable EPA guidances, policies, and procedures, and with the SOW.

V. FINDINGS OF FACT

A. Discovery of MTBE Contamination in the Charnock Sub-Basin

12. The City's and the SCWC's Charnock Wellfields (hereinafter "the Charnock Wellfields") have drawn groundwater from wells constructed within a groundwater basin known as the Charnock Sub-Basin. The Charnock Sub-Basin groundwater resources consist of the groundwater in the area bounded by the Santa Monica Mountains to the North, the Ballona Escarpment to the South, the Overland fault to the East, and the Charnock fault to the West. The Charnock Sub-Basin consists of multiple interconnected groundwater bearing layers.

13. In August 1995, the City discovered the gasoline additive MTBE in drinking water supply wells at its Charnock Wellfield, located at 11375 Westminster Avenue, Los Angeles, California.

14. In August 1995, the City's Charnock Wellfield had five operating municipal supply wells which, according to the City, provided approximately 45% of the drinking water for the City's 87,000 residents (1990 U.S. Census) and approximately 200,000 daytime customers. By June 13, 1996, all of the supply wells at the City's Charnock Wellfield were shut down due to the presence of MTBE contamination at the wellfield.

15. In October 1996, following the shutdown of the City's Charnock Wellfield, the SCWC, another water purveyor utilizing the Charnock Sub-Basin, shut down its wellfield in the Sub-Basin, in order to avoid drawing contamination toward the SCWC Wellfield. Prior to this shutdown, SCWC had two operating municipal supply groundwater wells, at 11607 and 11615 Charnock Road, Los Angeles, that provided, according to SCWC, a portion of the drinking water for approximately 10,000 residences and businesses in Culver City.

B. Current Provision of Water Replacement

16. After the discovery of MTBE in the City's Charnock Wellfield and the shutdown of both of the wellfields in the Charnock Sub-Basin, the City and SCWC (collectively "the Impacted Parties") began purchasing alternative water supplies from the Metropolitan Water District.

17. On September 22, 1999, the EPA and the Regional Board issued parallel administrative orders with identical scopes of work to Shell Oil Company, Shell Products and Equilon Enterprises, LLC (collectively "the Shell Orders"). (See, EPA Docket No. RCRA 7003-09-99-0007, and Regional Board Cleanup and Abatement Order No. 99-085.) These orders required Respondents to begin providing the Impacted Parties with Replacement Water beginning January 7, 2000, for a period of 5 years. Respondents are currently providing replacement water pursuant to these orders.

18. On March 9, 2000, the EPA issued a unilateral administrative order for participation and cooperation in water replacement to Chevron U.S.A., Inc., Exxon Mobil Corporation, Atlantic Richfield Corporation (d.b.a. Arco), Conoco, Inc., Kayo Oil Company, Douglas Oil Company of California, Unocal Corporation, Mobil Oil Corporation, Tosco Corporation, Thrifty Oil Company, Best California Gas, Ltd., Kazuho Nishida and HLW Corporation. This order required these parties to participate and cooperate with the parties to the Shell Orders in

providing water replacement. (See EPA Docket No. RCRA 7003-09-2000-0002.)

C. The Agencies' Early Response to the Charnock Sub-Basin MTBE Contamination

19. EPA, in consultation with the State, determined that a joint State and federal response was necessary to effectively protect human health and the environment from the threat created by MTBE contamination in the Charnock Sub-Basin and at the City's Charnock Wellfield. In April 1997, in order to pursue a coordinated effort to determine the source or sources of the MTBE at the City's wellfield and in the Charnock Sub-Basin Investigation Area groundwater, to remediate this environmental problem, and to restore the Charnock Sub-Basin to its beneficial use as a drinking water supply, EPA and the Regional Board entered into a Memorandum of Understanding ("MOU").

20. Pursuant to the MOU, the Agencies initially identified thirty (30) potential source facilities ("Potential Source Sites") within an approximate one and one-quarter mile radius of the City's Charnock Wellfield ("the Charnock Sub-Basin Investigation Area"). Two of the Potential Source Sites were gasoline product pipelines, and twenty-eight of the Potential Source Sites were underground storage tank systems ("USTs") where gasoline had been or was being stored. Subsequently, one additional underground storage tank site has been identified and has been required to perform an investigation. As investigations have continued, eleven sites have been designated as Source Sites by the Agencies and are listed in Attachment B. These facilities are shown on Figure 1 as PRP Sites Nos. 1, 4, 5, 6, 7, 8, 10, 11, 16, 23, and 30.

21. On June 19, 1997, the Agencies sent parties with responsibility for the Potential Source Sites, including Respondents, letters requiring the production of information, including fieldwork results, in order to determine which of the sites had contributed MTBE affecting the Charnock Sub-Basin Investigation Area. Respondents were required to provide information concerning and to conduct fieldwork at the Potential Source Site facilities. Respondents have conducted investigations at their Potential Source Sites. Respondents have begun remediation at one of their individual facilities. Respondents have also participated in regional investigation of the Charnock Sub-Basin MTBE Site ("Site"), conducted an

evaluation of remedial technological alternatives and provided water replacement and consultant costs for the Impacted Parties.

D. Description of Contaminants of Concern

22. MTBE is a synthetic, volatile, colorless, organic ether, with a turpentine-like taste and odor. The Chemical Abstracts Service ("CAS") registry number for MTBE is 1634-04-4. There are no known naturally occurring sources of MTBE. MTBE contains 18.2 percent oxygen by weight. MTBE was approved as a gasoline additive in 1979. In the 1980s, MTBE was used in varying amounts as an octane enhancer. Since the passage of the Clean Air Act Amendments of 1990, MTBE has been used in gasoline in increasing quantities as an oxygenate in reformulated gasoline designed to produce cleaner burning fuel.

23. No federal maximum contaminant level ("MCL") for MTBE has yet been adopted. However, EPA's Drinking Water Advisory, issued in 1997, set a level of 20 to 40 ppb for taste and odor. In May 2000, the State of California promulgated a primary MCL for MTBE of 13 ppb. In January 1999, the State of California promulgated a secondary MCL for MTBE based on taste and odor impacts of 5 ppb. MTBE has been found in the soil and/or groundwater at Respondents' Source Site Facilities.

24. Tertiary Butyl Alcohol ("TBA")(CAS-75-65-0) is a gasoline constituent, an impurity in commercial grade MTBE, and a breakdown product of MTBE that has been found at some of Respondents' Source Sites and at some regional well locations.

25. Potential exposure pathways for Charnock Sub-Basin groundwater containing MTBE and other gasoline constituent contamination are as follows: ingestion or inhalation of, or direct contact with, groundwater containing dissolved contaminants.

E. Respondents' Status

26. Respondent Shell is a corporation, incorporated in the State of Delaware.

27. Respondent Shell Products is a corporation, incorporated in the State of Delaware.

28. Respondent Equilon is a Delaware limited liability company formed as a joint venture on January 1, 1998.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

29. The presence of MTBE and other gasoline constituents in the Charnock Sub-Basin may present an imminent and substantial endangerment to human health and the environment.

30. Each of the Respondents is a "person" as that term is defined in Section 1004(15) of RCRA, 42 U.S.C. Section 6903(15) and 40 C.F.R. Section 260.10.

31. Each of the Respondents is a past or current owner and/or operator of the Source Site for which the Respondent is listed as a responsible party in Attachment B.

32. Each of the Respondents is a person whose past or present handling, storage, treatment, transportation or disposal of “solid wastes” as defined by Section 1004(27) of RCRA, 42 U.S.C. Section 6903(27), has contributed to a condition which may present an imminent and substantial endangerment to health or the environment under Section 7003 of RCRA, 42 U.S.C. Section 6973.

33. When released into the environment, MTBE is a solid waste, as that term is used in RCRA Section 7003, 42 U.S.C. Section 6973.

34. When released into the environment, gasoline constituents are a solid waste, as that term is used in RCRA Section 7003, 42 U.S.C. Section 6973.

35. The actions required by this Consent Order are necessary to protect the public health or the environment. The issuance of this Consent Order and the implementation of its provisions are in the public interest, and will expedite effective response actions.

VII. DEFINITIONS

36. Unless otherwise expressly provided herein, terms used in this

Order which are defined in RCRA shall have the meanings assigned to them in that Act. Whenever the terms listed below are used in this Order, the following definitions apply:

1. “Agencies” shall mean either the United States Environmental Protection Agency, or the California Regional Water Quality Control Board, Los Angeles Region, and the United States Environmental Protection Agency, acting jointly.

2. “Charnock Sub-Basin” shall mean the area of Los Angeles and Culver City bounded by the Overland Fault to the east, the Ballona escarpment to the south, the Charnock Fault to the west, and the base of the Santa Monica Mountains to the north.

3. “Charnock Sub-Basin Investigation Area” shall mean the approximately one and one-quarter mile radius area investigated by the Agencies to date, in order to locate potential sources of the MTBE contamination at the City of Santa Monica’s Charnock Wellfield.

4. “Charnock Wellfields” shall mean the drinking water supply wells operated by the City of Santa Monica at 11375 Westminster Avenue, Los Angeles, and the drinking water wells operated by the Southern California Water Company at 11607 and 11615 Charnock Road, Los Angeles.

5. “City” shall mean the City of Santa Monica, an Impacted Party.

6. “Contamination” shall mean the presence of contaminants, or a condition of pollution, as defined in the California Water Code.

7. “Days” shall mean calendar days, unless otherwise specified.

8. “Effective Date” shall mean July 3, 2000.

9. “EPA” shall mean the United States Environmental Protection Agency.

10. “Groundwater” shall mean the subsurface water that fills available openings in rock and/or soil materials such that they may be considered saturated.

11. “Impacted Parties” shall mean the City of Santa Monica and the Southern California Water Company.

12. “MCL” shall mean a federal or State promulgated standard for the Maximum Contaminant Level of a particular chemical when present in water to be served for domestic use by a public water system.

13. “Methyl Tertiary-Butyl Ether” or “MTBE” shall mean the chemical whose CAS registry number is 1634-04-4.

14. “Ppb” shall mean parts per billion. Note that in some instances when this unit of measurement has been used for soil samples it represents a conversion from the original units in which the analyses of the chemical contents at issue were presented as either milligrams or micrograms per kilogram. Further, in some instances when this unit of measurement has been used for groundwater samples it represents a conversion from the original units in which the analyses of the chemical contents at issue were presented as either milligrams or micrograms per liter.

15. “Potential Source Sites” shall mean the underground gasoline storage tank systems and gasoline product pipelines and the property on which they are located within the Charnock Sub-Basin Investigation Area identified on Figure 1 to this Consent Order.

16. “RCRA” shall mean the Resource Conservation and Recovery Act (also referred to as the Solid Waste Disposal Act), as amended, 42 U.S.C. Sections 6901, et seq.

17. “Regional Board” shall mean the California Regional Water Quality Control Board, Los Angeles Region.

18 “Regional Response” shall mean the actions to address the MTBE and other gasoline contamination of the Charnock Sub-Basin beyond those actions required to be taken at individual Source Sites or Potential Source Sites.

19. “Release(s)” shall mean discharge(s) or disposal as those terms are used in RCRA.

20. “Remedial Action” shall mean activities required by EPA and/or the Agencies to control or eliminate releases of MTBE and/or other gasoline constituent contamination from the Site.

21. “Scope of Work” shall mean the document provided as Attachment A to this Order and incorporated herein by this

reference. The Scope of Work will also be referred to as the "SOW."

22. "SCWC" shall mean the Southern California Water Company, an Impacted Party.

23. "Site" or "the Charnock Sub-Basin MTBE Site" shall mean the extent of MTBE and other gasoline constituent contamination in the Charnock Sub-Basin.

24. "Source Sites" or "Source Site Facilities" shall mean the property and related underground gasoline storage tank systems within the Charnock Sub-Basin Investigation Area, identified in Attachment B.

25. "Tertiary-Butyl Alcohol" or "TBA" shall mean the chemical whose CAS registry number is 75-65-0.

26. "USTs" shall mean underground storage tank systems, including the real property, underground storage tanks and associated piping and equipment located or formerly located at Potential Source Sites.

27. "Water Replacement" shall have the definition provided for that term in EPA Orders Docket Nos. RCRA 7003-09-99-0007 and RCRA 7003-09-2000-0002.

28. "Work" shall mean those requirements set forth in Section VIII (Work to be Performed) of this Order and the attached Scope of Work (SOW).

VIII. WORK TO BE PERFORMED

37. All Work performed under this Consent Order shall be under the direction and supervision of qualified personnel. As required by Task 1 in the SOW (which has been incorporated by reference) within 45 days of the Respondents' signature on this Order, the Respondents shall notify EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories to be used in carrying out such Work.

38. The qualifications of the persons undertaking the Work for Respondents shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. This Order is

contingent on Respondents' demonstration to EPA's satisfaction that Respondents are qualified to perform properly and promptly the actions set forth in this Consent Order and the incorporated SOW.

39. If EPA disapproves in writing of any person(s)' technical qualifications, Respondents shall notify EPA of the identity and qualifications of the replacement(s) within 30 days of the written notice. If EPA subsequently disapproves of the replacement(s), EPA reserves the right to terminate this Order and to conduct all of the activities required in this Order and the SOW and to seek reimbursement for costs and penalties from Respondents. During the course of the Work, Respondents shall notify EPA in writing of any changes or additions in the personnel used to carry out such Work, providing their names, titles, and qualifications. EPA shall have the same right to approve changes and additions to personnel as it has hereunder regarding the initial notification.

40. Respondents shall conduct activities and submit deliverables as provided by the SOW, which has been incorporated by reference. Respondents have agreed that their obligations to perform the Work will begin on the specified Effective Date of this Order, even though this Order will not become a final order until EPA has reviewed any comments received during the public comment period and issued a Final Order.

41. Respondents shall, prior to any off-site shipment of contaminants generated by Respondents during SOW activities from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Designated Project Coordinator of such shipment of contaminants. However, the notification of shipments shall not apply to any such off-site shipments when the total volume of such shipments will not exceed 10 cubic yards. The notification shall be in writing, and shall include the following information, where available:

(1) the name and location of the facility to which the contaminants are to be shipped;

(2) the type and quantity of the contaminants to be shipped;

(3) the expected schedule for the shipment of the contaminants; and

(4) the method of transportation.

42. Respondents shall notify the receiving state of major changes in the shipment plan, such as the decision to ship the contaminants to another facility within the same state, or to a facility in another state. The identity of the receiving facility and state will be determined by Respondents following the award of the contract for some or all of the Work. Respondents shall provide all relevant information, including information under the categories noted above, on the off-site shipments, as soon as practical after the award of the contract and before the contaminants are actually shipped.

IX. APPROVALS AND DISAPPROVALS/ EPA PERFORMANCE OF THE WORK

43. EPA reserves the right to approve, disapprove or approve with modifications all deliverables. At EPA's discretion, Respondents must fully correct all deficiencies and incorporate and integrate all information and comments supplied by the Agencies, including in either subsequent or resubmitted deliverables.

44. In the event that Respondents are required to amend or revise a report, plan or other submittal upon receipt of the Agencies' comments, if EPA subsequently disapproves of the revised submittal, or if subsequent submittals do not fully reflect the Agencies' directions for changes, EPA retains the right to seek stipulated or statutory penalties; perform its own studies, complete the SOW, and seek reimbursement from the Respondents for its costs; and/or to seek any other appropriate relief.

45. In the event that EPA takes over some of the tasks, but not the preparation of the SOW deliverables, Respondents shall incorporate and integrate information supplied by EPA into their final reports.

46. Neither failure of EPA to expressly approve or disapprove of Respondents' submissions within a specified time period(s), nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express

approval for Respondents' deliverables, Respondents are responsible for preparing deliverables acceptable to EPA.

X. MODIFICATION OF THE WORK PLAN/ IDENTIFICATION OF THREATS

47. If at any time during implementation of the Work, Respondents identify a need for additional data consistent with the objectives of this Order as described in the SOW, a memorandum documenting the need for additional data shall be submitted to the EPA Project Coordinator within 20 days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into reports and deliverables.

48. In the event of conditions posing an immediate threat to human health or welfare or the environment, Respondents shall notify EPA and the state immediately. In the event of unanticipated or changed circumstances at the Site, of which Respondents become aware, Respondents shall notify the EPA Project Coordinator by telephone within 24 hours of discovery of the unanticipated or changed circumstances.

XI. QUALITY ASSURANCE

49. Respondents shall assure that work performed, samples taken and analyses conducted conform to the requirements of the SOW, and any guidances identified therein. Respondents will assure that field personnel used by Respondents are properly trained in the use of field equipment and in chain of custody procedures.

XII. DECISION DOCUMENTS

50. EPA retains the responsibility for the issuance of any decision documents related to the Site.

51. EPA shall provide Respondents with copies of all decision documents for the Site.

52. EPA will determine the contents of the administrative record file for selection of any response actions.

Respondents must submit to EPA documents developed during the course of the Work upon which selection of the response action may be based. Respondents shall provide copies of plans, task memoranda including documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports and other reports. Respondents must additionally submit any previous studies conducted under state, local or federal authorities relating to selection of the response action, and all communications between Respondents and state, local or other federal authorities concerning selection of the response action. At EPA's discretion, Respondents shall establish a community information repository at or near the Site, to house one copy of the administrative record for any decision documents issued with respect to the Site.

XIII. SAMPLING, ACCESS, AND DATA AVAILABILITY/ADMISSIBILITY

53. All results of sampling, tests, modeling or other data (including raw data) generated by Respondents, or on Respondents' behalf, during implementation of this Consent Order shall be submitted to EPA as provided in the SOW. EPA will make available to the Respondents validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

54. Respondents will verbally notify EPA at least 15 days prior to conducting significant field events as described in the SOW, approved workplans or the sampling and analysis plan. At EPA’s verbal or written request, or the request of EPA’s oversight personnel, Respondents shall allow split or duplicate samples to be taken by the Agencies (and any authorized representatives) or by the Impacted Parties of any samples collected by the Respondents in implementing this Consent Order. All split samples of Respondents shall be analyzed by the methods identified in the Quality Assurance Project Plan (“QAPP”).

55. At all reasonable times, EPA,the Regional Board and the Impacted Parties and their authorized representatives shall have the authority to enter and freely move about all property at the Site and off-site areas where work, if any, is being performed, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or

Respondents and its contractor pursuant to this Consent Order; reviewing the progress of the Respondents in carrying out the terms of this Consent Order; conducting tests as the Agencies or their authorized representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by the Respondents. The Respondents shall allow these persons to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Consent Order. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under federal law. All parties with access to the Site under this paragraph shall comply with all approved health and safety plans.

56. The Respondents may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Consent Order under 40 C.F.R. Section 2.203 in the manner described by 40 C.F.R. Section 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim or substantiation accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the State without further notice to the Respondents. Respondents agree not to assert confidentiality claims with respect to any data related to site conditions, sampling, or monitoring.

57. In entering into this Consent Order, Respondents waive any objections to any environmental samples collected and analyzed by Respondents pursuant to the SOW that have been verified according to the quality assurance/quality control (QA/QC) procedures required by this Consent Order. If Respondents object to any other data relating to the SOW, Respondents shall submit to EPA a report that identifies and explains their objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within 15 days of the monthly progress report containing the data.

58. If the Site, or the off-site area that is to be used for access or for activities within the SOW, is owned in whole or in part by parties other than those bound by this

Consent Order, Respondents will obtain, or use their best efforts to obtain, site access agreements from the present owner(s) within 60 days of the Effective Date of this Consent Order, or within 60 days of the date on which Respondents learn that access will be needed, whichever is later. Such agreements shall provide access for the Agencies, their contractors and oversight officials, the Impacted Parties and their contractors, and the Respondents and/or their authorized representatives, and such agreements shall specify that Respondents are not EPA's representative with respect to liability associated with site activities. Copies of such agreements shall be provided to EPA prior to Respondents' initiation of field activities. Respondents' best efforts shall include providing reasonable compensation to any property owner of any properties to which access is needed.

59. If access agreements are not obtained within the time referenced above, Respondents shall immediately notify EPA of their failure to obtain access. EPA may obtain access for the Respondents, perform those tasks or activities with EPA contractors, or terminate the Consent Order in the event that Respondents cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate the Consent Order, Respondents shall perform all other activities not requiring access. EPA shall retain the right to seek all costs incurred in performing such activities from Respondents. Respondents additionally shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Furthermore, the Respondents agree to indemnify the U.S. Government as specified in Section XXIII (Other Claims) of this Order.

XIV. DESIGNATED PROJECT COORDINATORS AND NOTICE

60. Documents including reports, approvals, disapprovals, and other correspondence which must be submitted under this Consent Order shall be provided to EPA's Project Coordinator or Alternative Project Coordinator as required by the SOW.

61. On or before the Effective Date of this Consent Order, EPA and the Respondents shall each designate their own Project Coordinator and EPA shall also designate an Alternate Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of this

Consent Order. To the maximum extent possible, communications between the Respondents and EPA shall be directed to the Project Coordinator(s) by e-mail and U.S. Mail, with copies to such other persons as EPA, the State, and Respondents may respectively designate. Communications include, but are not limited to, all documents, reports, approvals, and other correspondence submitted under this Consent Order.

62. EPA and the Respondents each have the right to change their respective Project Coordinators. The other party must be notified in writing at least 10 days prior to the change. EPA may disapprove of Respondents' Project Coordinator if there is evidence that the person selected does not have the necessary qualifications to effectively perform this role.

63. EPA's Project Coordinator and Alternative Project Coordinator shall have the authority to halt any work required by this Consent Order, and to take any necessary response action when s/he determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Consent Order shall not be cause for the stoppage or delay of work.

64. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the SOW. The oversight personnel may observe work and make inquiries in the absence of EPA, but are not authorized to modify the Workplan.

XV. OTHER APPLICABLE LAWS

65. Respondents shall comply with all applicable laws, including all state, federal and local requirements, as well as any permitting requirements, when performing the Work.

XVI. RECORD PRESERVATION

66. All records and documents in Respondents' possession that relate in any way to the Site shall be preserved during the conduct of this Consent Order and for a minimum of 10 years

after completion of the Work. The Respondents shall acquire and retain copies of all documents that relate to the Site and are in the possession of their employees, agents, accountants, contractors, or attorneys. After this 10 year period, the Respondents shall notify EPA at least 90 days before the documents are scheduled to be destroyed. If EPA requests that the documents be saved, the Respondents shall, at no cost to EPA, give EPA the documents or copies of the documents.

XVII. DISPUTE RESOLUTION

67. Any disputes concerning activities or deliverables required under this Order, excluding any decision documents issued by EPA, shall be resolved as follows: EPA and Respondents shall expeditiously and informally attempt to resolve any disagreements concerning the performance of the Work. EPA's and Respondents' Project Coordinators shall first confer in an effort to resolve the dispute. If the Project Coordinators are unable to informally resolve the dispute within three (3) days, Respondents shall notify EPA in writing of their objections. Respondents' written objections shall define the dispute, state the basis of Respondents' objections, and be sent certified mail, return receipt requested. EPA and the Respondents then have an additional 14 days to reach agreement. If an agreement is not reached within 14 days, Respondents may request a determination by EPA's Division Director of the Waste Management Division. The Division Director's determination is EPA's final decision. Respondents shall proceed in accordance with EPA's final decision regarding the matter in dispute, regardless of whether Respondents agree with the decision. If the Respondents do not agree to perform or do not actually perform the Work in accordance with EPA's final decision, EPA reserves the right in its sole discretion to conduct the Work itself, to seek reimbursement from the Respondents, to seek enforcement of the decision, to seek stipulated penalties, and/or to seek any other appropriate relief.

68. Respondents are not relieved of their obligations to perform and conduct activities and submit deliverables on the schedule set forth in the SOW and any approved Workplans, while a matter is pending in dispute resolution. The invocation of dispute resolution does not stay stipulated penalties under this Order.

XVIII. DELAY IN PERFORMANCE/STIPULATED PENALTIES

69. For each day that the Respondents fail to complete a deliverable in a timely manner or fail to produce a deliverable of acceptable quality, or otherwise fail to perform in accordance with the requirements of this Order, Respondents shall be liable for Stipulated Penalties. Penalties begin to accrue on the day that performance is due or a violation occurs, and extend through the period of correction. Where a revised submission by Respondents is required, stipulated penalties shall continue to accrue until a satisfactory deliverable is produced. EPA will provide written notice for violations that are not based on timeliness; nevertheless, penalties shall accrue from the day a violation commences. Payment shall be due within 30 days of receipt of a demand letter from EPA. Respondents shall not be liable for stipulated penalties to the extent that performance is excused by a force majeure, as provided in Section XIX of this Consent Order.

70. Respondents shall pay interest on the unpaid balance, which shall begin to accrue at the end of the 30-day period following EPA's demand, at the rate established by the Department of Treasury pursuant to 30 U.S.C. Section 3717. Respondents shall further pay a handling charge of 1 percent, to be assessed at the end of each 31 day period, and a 6 percent per annum penalty charge, to be assessed if the penalty is not paid in full within 90 days after it is due.

71. Respondents shall make all payments by forwarding their check to: U.S. Department of the Treasury, Attn: EPA Region IX Hearing Clerk, P.O. Box 360863M, Pittsburgh, PA 15251. Checks shall identify the payment as made in connection with the Charnock Sub-Basin MTBE Site and refer to the title and docket number of this Order. A copy of the check and/or transmittal letter shall be forwarded to the EPA Project Coordinator and the EPA Attorney, as provided below or as revised in the future:

Steven Linder (WST-8)
Charnock Sub-Basin MTBE Site Project Coordinator
U.S. EPA Region IX
75 Hawthorne Street
San Francisco, CA 94105

Greg Lovato (WST-8)

Charnock Sub-Basin MTBE Site Alternate
Project Coordinator
U.S. EPA Region IX
75 Hawthorne Street
San Francisco, CA 94105

Laurie Williams (ORC-3)
Charnock Sub-Basin MTBE Site Attorney
U.S. EPA Region IX
75 Hawthorne Street
San Francisco, CA 94105

72. For the following major deliverables, stipulated penalties shall accrue in the amount of up to $1500 per day, per violation, for the first seven days of noncompliance; up to $2500 per day, per violation, for the 8th through 14th day of noncompliance; up to $3000 per day, per violation, for the 15th day through the 30th day; and up to $3500 per day per violation for all violations lasting beyond 30 days: 1) Work Plan and Project Schedule (Task 1); 2) Interim Provision of Drinking Water Information Summary Report (Task 4): 3) Treatability Technology Performance Report(Task 5); 4) General Response Alternatives Identification and Screening Evaluation Letter Report (Task 6.1), 6) Analysis of Alternatives Detailed Evaluation Report (Drinking Water Replacement)(Task 6.11); 7) Environmental database with GIS enhancements on dedicated computers (Tasks 8.1-8.3); 8) Numerical Groundwater Flow Model and Groundwater Flow Modeling Report (Tasks 10.1.1 and 10.1.2); 9) Current Conditions Report (Task 11); 10) Regional Field Investigation Workplan (Task 12.1); 11) Regional Field Investigation Report (Task 12.3); 12) Interim Restoration Measures Workplan (Task 13); and 13) Interim Restoration Measures Evaluation Report(Task 14).

73. For any other violation of this Consent Order, stipulated penalties shall accrue in the amount of up to $100 per day, per violation, for the first seven days of noncompliance; up to $1000 per day, per violation, for each additional day of violation beyond seven days.

74. Respondents may dispute EPA's right to the stated amount of penalties by invoking the dispute resolution procedures under Section XVII (Dispute Resolution) herein. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondents do not prevail upon resolution, all penalties shall be due to EPA within 30

days of resolution of the dispute. If Respondents prevail upon resolution, no penalties shall be paid.

75. In the event that EPA provides for corrections to be reflected in the next deliverable and does not require resubmission of that deliverable, stipulated penalties for that interim deliverable shall cease to accrue on the date of such decision by EPA.

76. The stipulated penalties provisions do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA because of the Respondents' failure to comply with this Consent Order, including but not limited to conduct of all or part of the SOW by EPA. Payment of stipulated penalties does not alter Respondents' obligation to complete performance under this Consent Order.

XIX. FORCE MAJEURE

77. "Force majeure", for purposes of this Consent Order, is defined as any event arising from causes beyond the control of the Respondents and of any entity controlled by Respondents, including their contractors and subcontractors, that delays the timely performance of any obligation under this Consent Order notwithstanding Respondents' best efforts to avoid the delay. The requirement that the Respondents exercise "best efforts to avoid the delay" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or expenses of any work to be performed under this Order or the financial difficulty of Respondents to perform such work. Force majeure events shall include failure of other parties, not under the control of Respondents, to provide information that Respondents are required to incorporate into deliverables, however, such a force majeure shall not excuse Respondents from providing such deliverables with all information and analyses that can be provided absent the information that other parties have failed to provide.

78. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a force majeure event, Respondents shall notify by telephone the Project Coordinator or, in his or her absence, the Director of the Waste Management Division, EPA Region IX, within 48 hours of when the Respondents knew or should have known that the event might cause a delay. Within five business days thereafter, Respondents shall provide in writing the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an endangerment to public health or the environment. Respondents shall exercise best efforts to avoid or minimize any delay and any effects of a delay. Failure to comply with the above requirements shall preclude Respondents from asserting any claim of force majeure.

79. If EPA agrees that the delay or anticipated delay is attributable to force majeure, the time for performance of the obligations under this Order that are directly affected by the force majeure event shall be extended by agreement of the parties, pursuant to Section XXV (Effective Date and Subsequent Modification) of this Order, for a period of time not to exceed the actual duration of the delay caused by the force majeure event. An extension of the time for performance of the obligation directly affected by the force majeure event shall not, of itself, extend the time for performance of any other or subsequent obligation.

80. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, or does not agree with Respondents on the length of the extension, the issue shall be subject to the dispute resolution procedures set forth in section XVII (Dispute Resolution) of this Order. In any such proceeding, to qualify for a force majeure defense, Respondents shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondents did exercise or are exercising due diligence by using their best efforts to avoid and mitigate the effects of the delay, and that

Respondents complied with the requirements of this Section (Force Majeure).

81. Should Respondents carry the burden of establishing a Force Majeure as set forth above, the delay at issue shall be deemed not to be a violation of the affected obligation of this Consent Order.

XX. PROVISION OF LABORATORY SERVICES FOR SPLIT SAMPLES AND QUALITY ASSURANCE

82. Respondents shall provide laboratory services for split and quality assurance samples collected/supplied and shipped by the Agencies or their representatives as part of the Charnock MTBE Investigation. Analytical methodology use by the laboratory(ies) shall be consistent with the Agencies' General Requirements for Analytical Methods for the Site as specified in the SOW. Data reporting shall be consistent with the Agencies' General Requirements for the Charnock MTBE Project.

83. The laboratory service provided shall include analysis of split samples for up to 10% of all samples taken pursuant to the SOW, and QA/QC analyses for up to 5% of all samples taken puruant to the SOW. The samples shall all be from wells/sample points designated as regional monitoring locations by the Agencies or shall be samples of known concentrations provided to test the accuracy of the laboratory's analyses.

84. All data generated by the laboratories shall be made available immediately to the Agencies in accordance with the requirements for all technical deliverables generated pursuant to the SOW. Once the Agencies have received the laboratory data, they will release all chain of custody information including split sample location information to the Respondents. All correspondence generated related to the data analysis shall be delivered to the Agencies at the same time it is delivered to the Respondents.

85. The Respondents shall propose the laboratory or laboratories and at least one alternate laboratory for each analytical method within 30 days of the Effective Date. The Agencies have the right to reject any of the proposed

laboratories. Cause for rejection may include, but shall not be limited to, conflict of interest, past performance information, and confidential agency laboratory audit information. Laboratory services shall be made available to the Agencies within 30 calendar days of the Agencies' laboratory selection concurrence.

86. The Agencies reserve the right to require a change in laboratories for reasons, which may include, but shall not be limited to, performance, conflict of interest, or confidential agency lab audit information. In the event of a laboratory change required by the Agencies, the Respondents shall propose an alternative laboratory and an alternate alternative laboratory within 30 calendar days. Once Agencies' concurrence is granted on the proposed laboratory, the laboratory service shall be made available to the Agencies within 15 calendar days.

XXI. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

87. EPA reserves the right to bring an action against the Respondents under any applicable law for recovery of all response costs, including oversight costs, and past costs incurred by the United States with respect to the Site that have not been reimbursed by the Respondents, any costs incurred in the event that EPA performs the SOW or any part thereof, and any costs incurred by the United States in connection with response activities conducted at this Site. These costs also include, but are not limited to, any costs, including attorneys fees, incurred in connection with obtaining access for Respondents and/or the Agencies, and any costs EPA incurs performing the Work on property not owned or controlled by Respondents.

88. EPA reserves the right to collect stipulated penalties as provided in this Consent Order, or to seek penalties pursuant to Section 7003 of RCRA, 42 U.S.C. Section 6973. EPA also reserves the right to terminate this Consent Order at any time and to issue orders to or bring enforcement actions requiring Respondents and/or other parties to perform the uncompleted portion of the Work required by the SOW and any other work necessary to address the Site.

89. Except as expressly provided in this Order, each party

reserves all rights and defenses it may have. Nothing in this Consent Order shall affect EPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, statutory penalties, and/or punitive damages.

90. Following satisfaction of the requirements of this Consent Order in accordance with Section XXVI of this Consent Order (Termination and Satisfaction), Respondents shall have resolved their liability to EPA for the Work performed by Respondents pursuant to this Consent Order. Respondents are not released from liability, if any, for any other response actions that the Agencies determine are needed to address the Site.

XXII. DISCLAIMER

91. By signing this Consent Order and taking actions under this Consent Order, the Respondents do not necessarily agree with EPA's Findings of Fact and Conclusions of Law, or with the provisions of paragraph 7 of Section II (Jurisdiction). Furthermore, the participation of the Respondents in this Consent Order shall not be considered an admission of liability and is not admissible in evidence against the Respondents in any judicial or administrative proceeding other than a proceeding by the United States, including EPA, to enforce this Consent Order or a judgment relating to it. Respondents retain their right to assert claims against other potentially responsible parties with respect to the Site. However, the Respondents agree not to contest the validity or terms of this Order, or the procedures underlying or relating to it in any action brought by the United States, including EPA, to enforce its terms.

XXIII. OTHER CLAIMS

92. In entering into this Consent Order, Respondents waive any right to seek reimbursement from EPA. Respondents further waive all statutory and common law claims against EPA, relating to or arising out of conduct of this Consent Order, including, but not limited to, contribution and counterclaims.

93. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law

or equity against any person, firm, partnership, subsidiary or corporation not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants found at, taken to, or taken from the Site.

94. Respondents shall bear their own costs and attorneys fees.

XXV. LIABILITY INSURANCE

95. Prior to commencement of any Work under this Consent Order, Respondents shall secure, and shall maintain in force for the duration of this Consent Order, and for two years after the completion of all activities required by this Consent Order, Comprehensive General Liability (“CGL") and automobile insurance, with limits of at least $2 million dollars, combined single limit, naming as insured the United States. The CGL insurance shall include Contractual Liability Insurance in the amount of $ 2 million per occurrence, and Umbrella Liability Insurance in the amount of $2 million per occurrence.

96. Respondents shall also secure, and maintain in force for the duration of this Order and for two years after the completion of all activities required by this Consent Order the following: i. Professional Errors and Omissions Insurance in the amount of $1,000,000.00 per occurrence, and ii. Pollution Liability Insurance in the amount of $1,000,000.00 per occurrence, covering as appropriate both general liability and professional liability arising from pollution conditions.

97. For the duration of this Consent Order, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and workmen's compensation insurance for all persons performing work on behalf of the Respondents, in furtherance of this Order.

98. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then with respect to

that contractor or subcontractor Respondents need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

99. Prior to commencement of any Work under this Order, and annually thereafter on the anniversary of the Effective Date of this Order, Respondents shall provide to EPA certificates of such insurance and a copy of each insurance policy.

100. At least 7 days prior to commencing any Work under this Consent Order, Respondents shall certify to EPA that the required insurance has been obtained by that contractor.

101. The Respondents agree to indemnify and hold the United States Government, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondents, its employees, agents, servants, receivers, successors, or assignees, or any persons including, but not limited to, firms, corporations, subsidiaries and contractors, in carrying out activities under this Consent Order. The United States Government or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondents in carrying out activities under this Consent Order.

XXV. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

102. The Effective Date of this Consent Order for purposes of calculating due dates shall be July 3, 2000. However, this Order shall not become a final order, until all of the public participation requirements of RCRA Section 7003(d) have been fulfilled. In compliance with those requirements, EPA shall provide appropriate public notice and opportunity to comment on this Administrative Order on Consent.

103. This Consent Order may be amended by mutual agreement of EPA and Respondents. Amendments shall be in writing and shall be effective when signed by the Director of Region IX’s Waste Management Division, or any other duly delegated EPA representative. As of the Effective Date, this authority, to sign amendments to the Consent Order, has not been delegated to the EPA Project Coordinators.

104. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by the Respondents will be construed as relieving the Respondents of their obligation to obtain such formal approval as may be required by this Order. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and attachments required by this Consent Order are, upon approval by EPA, incorporated into this Order.

XXVI. TERMINATION AND SATISFACTION

105. This Consent Order shall terminate when the Respondents demonstrate in writing and certify to the satisfaction of EPA that all activities required under this Consent Order, including any stipulated penalties demanded by EPA, have been performed and EPA has approved the certification. This notice shall not, however, terminate Respondents' remaining obligation to comply with Sections XVI (Other Applicable Laws) and the record retention requirements of this Consent Order.

106. The certification shall be signed by a responsible official representing each Respondent, or in the case of non-corporate Respondents by the general partner of the Respondent or by the individual Respondent. Each Respondent or Respondent representative shall make the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate, and complete." For purposes of this Consent Order, a responsible official is a corporate official who is in charge of a principal business function.

BY:_____ DATE:_____

Name: Chuck Paine

Title: Remediation Manager
As Representative for Shell Oil Company

BY:_____ DATE:_____

Name: Chuck Paine

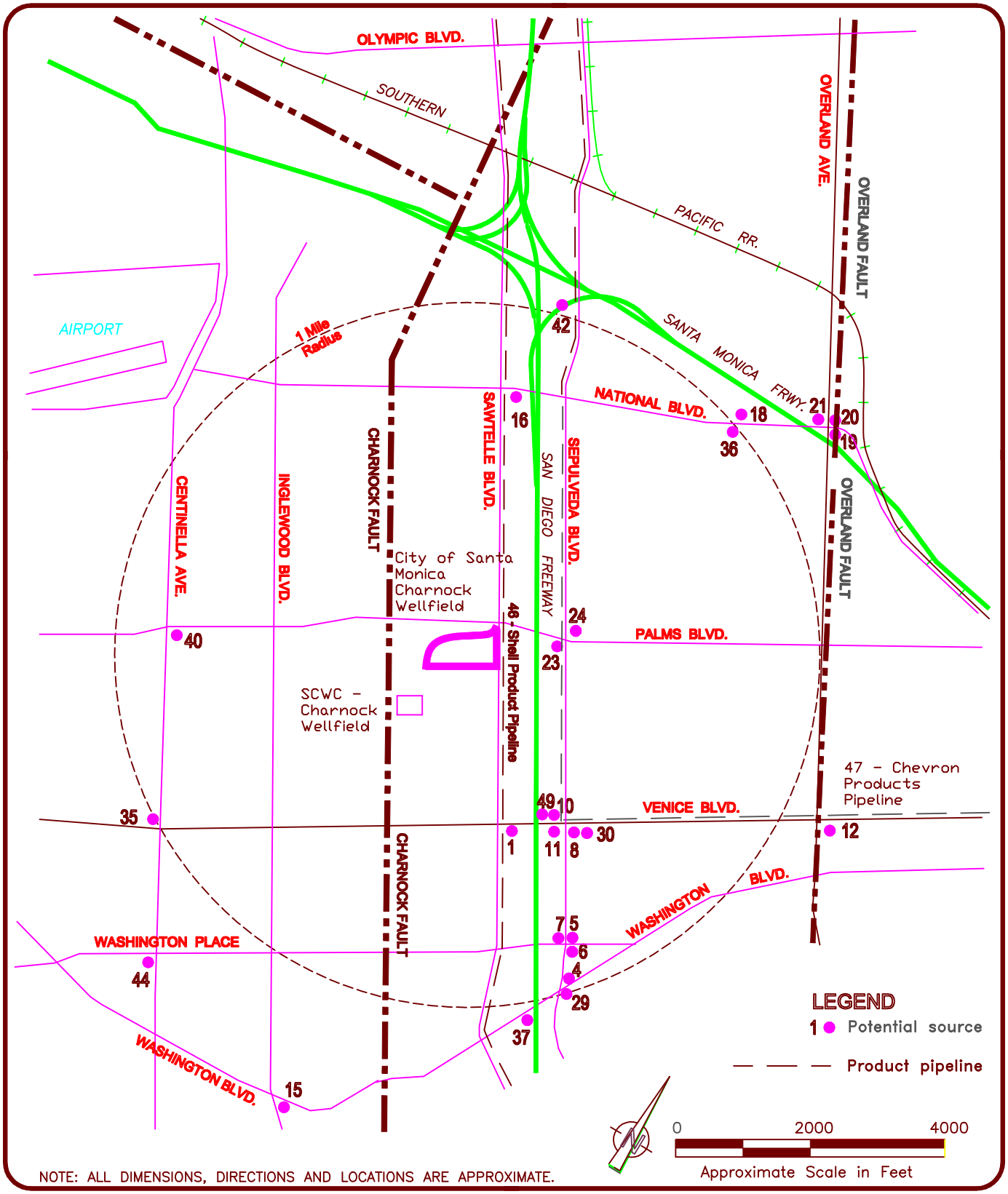
Title: Remediation Manager
As Representative for Shell Oil Products Company

BY:_____ DATE:_____

Name: Chuck Paine

Title: Authorized Signatory
As Representative for Equilon Enterprises

BY:_____ DATE:_____
Julie Anderson, Director
Waste Management Division
U.S. Environmental Protection Agency
Region IX



Los Angeles Regional Water Quality Control Board / U.S. Environmental Protection Agency Region 9

CHARNOCK MTBE PROJECT

CHARNOCK SUB-BASIN INVESTIGATION AREA AND POTENTIAL SOURCE SITE LOCATIONS LOS ANGELES AND CULVER CITY CALIFORNIA

PROJECT NO.	DATE	FIGURE
	6/28/2000	1

CHARNOCK SUB-BASIN INVESTIGATION AREA
POTENTIAL SOURCE-SITE LOCATIONS

NO.	NAME	ADDRESS
1	Super Petrol Fuels (Former Exxon Service Station #7-9477)	11284 Venice Blvd., Culver City
4	Arco Service Station #1246	11181 Washington Blvd., Culver City
5	Chevron Service Station #9-2894	11197 Washington Place, Culver City
6	Former Conoco Store #05625	11198 Washington Place, Culver City
7	Former Unocal Service Station #3016	11203 Washington Place, Culver City
8	Mobil Service Station #11-FX5	3800 S. Sepulveda Blvd., Culver City
10	Chevron Service Station #9-0561	3775 Sepulveda Blvd., Los Angeles
11	Shell Service Station #204-1944-0100	3801 Sepulveda Blvd., Los Angeles
12	Winall Oil Co. #18	10646 Venice Blvd., Los Angeles
15	Powergas Station (d.b.a. Unocal Service Station)	11962 Washington Blvd., Culver City
16	Tosco Service Station #4357 (Former Unocal)	11280 National Blvd., Los Angeles
18	Shell Service Station #204-4530-0708	10815 National Blvd., Los Angeles
19	Arco Service Station #5117	10612 National Blvd., Los Angeles
20	Mobil Service Station #18-GL	10611 National Blvd., Los Angeles
21	Former Unocal Service Station #6023	3061 Overland Ave., Los Angeles
23	Thrifty Oil #247 (Former Chevron Service Station #90392)	3505 Sepulveda Blvd., Los Angeles
24	Former Unocal Service Station #2726	3470 S. Sepulveda Blvd., Los Angeles
29	Albertson Brothers Oldsmobile	4114 Sepulveda Blvd., Culver City
30	Former Great West Car Wash	11166 Venice Blvd., Culver City
35	Former Chevron Service Station #9-0545	12403 Venice Blvd., Los Angeles
36	Former Chevron Service Station #9-2377	10830 National Blvd., Los Angeles
37	Culver City Fire Station No. 2	11252 W. Washington Blvd., Culver City
40	Shell Service Station #204-4531-2109	3500 Centinela Avenue, Los Angeles
42	Caltrans Westdale Maintenance Facility	2723 S. Sepulveda Blvd., Los Angeles
46	Equilon Pipeline Company LLC – Ventura Products Line	
47	Chevron Products Company Van Nuys Pipeline	
49	AM/PM Special Delivery Service	11223 Venice Boulevard, Los Angeles

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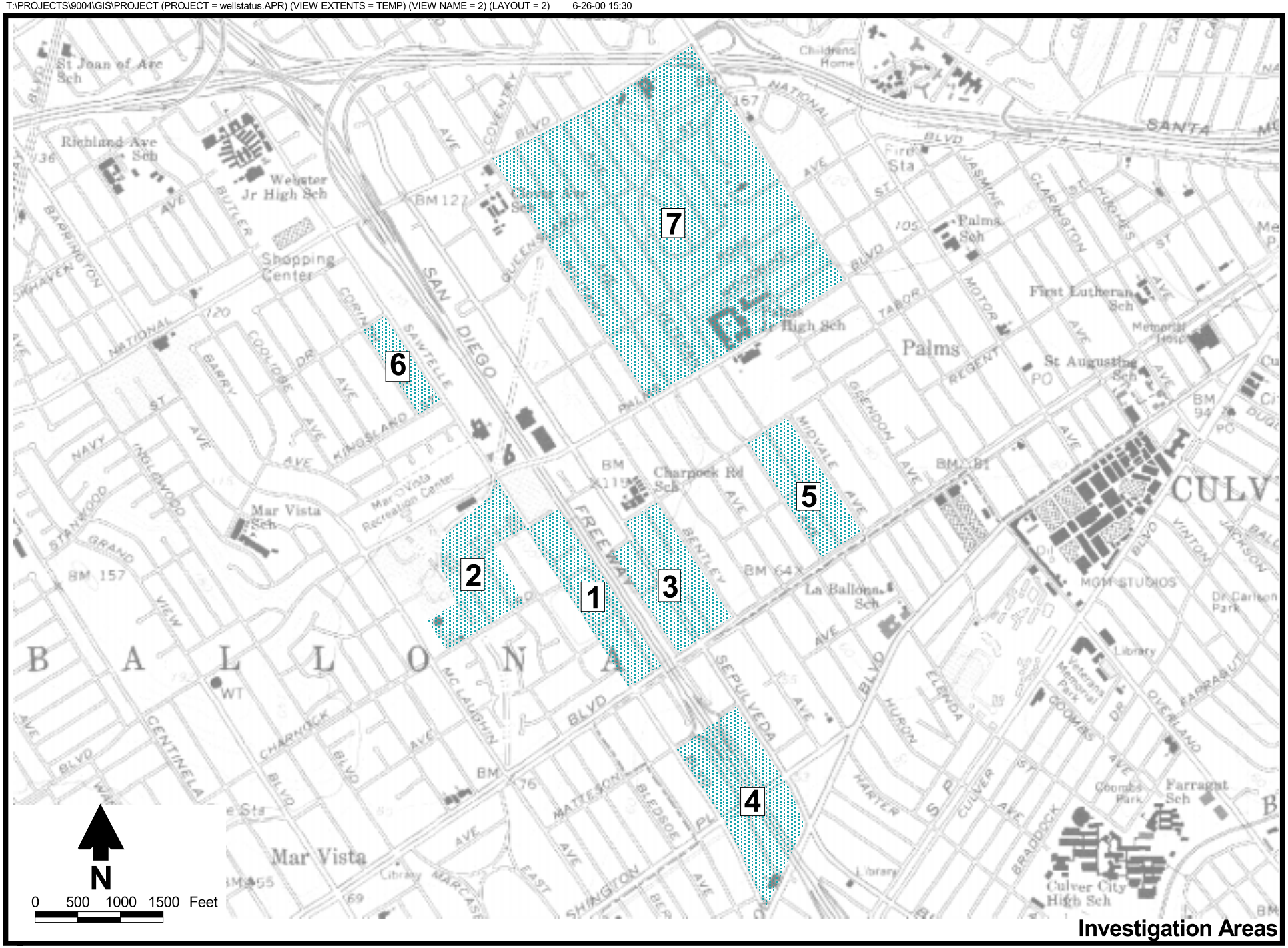

Figure 2

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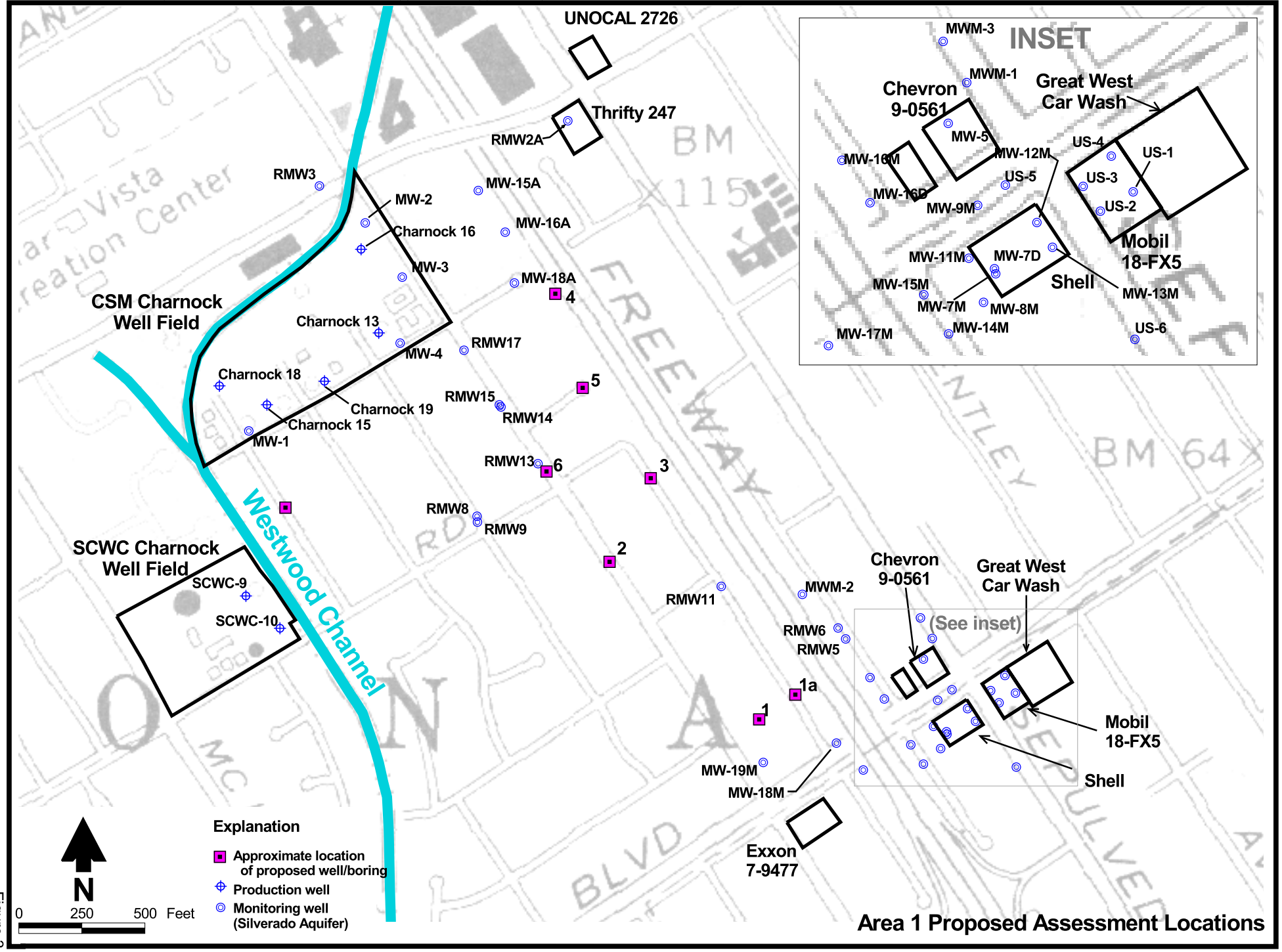

Figure 3

June 30, 2000

ATTACHMENT A

SCOPE OF WORK
FOR
INITIAL REGIONAL RESPONSE ACTIVITIES
TO ADDRESS
MTBE AND OTHER GASOLINE
CONSTITUENT CONTAMINATION
IN THE CHARNOCK SUB-BASIN

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

A. INTRODUCTION

This Scope of Work (SOW) is provided as Attachment A to California Regional Water Quality Board, Los Angeles Region (Regional Board) Stipulated Agreement No. 00-064 and the United States Environmental Protection Agency, Region 9 (USEPA) Administrative Order on Consent USEPA Docket No. RCRA 7003-09-2000-0003 (collectively "the SA/AOC.") Neither a challenge to one agency's SA/AOC nor the decision by one agency not to enforce its SA/AOC will affect the ability of the other agency to enforce all requirements of that agency's SA/AOC, including this Scope of Work.

The purpose of the SA/AOC, and this common SOW, is to require Respondents to perform initial regional response activities within the Charnock Sub-Basin necessary to restore the Charnock Sub-Basin to its beneficial use as a drinking water supply and to remediate the MTBE and other gasoline contaminants within the Charnock Sub-Basin Investigation Area.

B. DEFINITIONS FOR SCOPE OF WORK

Unless otherwise expressly provided herein, terms used in this SOW, and the SA/AOC of which it is a part, shall have the meanings that are assigned to them in the Resource Conservation and Recovery Act (RCRA) and in the California Water Code. In the event of any conflict between RCRA and the California Water Code, the Agencies will determine the meaning of the term at issue. Except where otherwise noted, the definitions provided in the Agencies' SA/AOC will apply to this Scope of Work, as modified and/or supplemented by the following definitions:

"Agencies" shall mean either (1) the RWQCB, or (2) the USEPA, or (3) both of these agencies acting jointly.

"Agencies' General Requirements" shall mean the requirements issued by the Agencies dated June 19, 1997 and modifications dated September 18, 1997, October 16, 1997, January 15, 1998, and September 22, 1999 and any subsequent updates up to the signing date.

"Charnock Sub-Basin" shall mean the area of Los Angeles and Culver City bounded by the Overland Fault to the east, the Ballona escarpment to the south, the Charnock Fault to the west, and the base of the Santa Monica Mountains to the north.

"Charnock Sub-Basin Investigation Area" shall mean the area within which the Agencies have, to date, identified Potential Source Sites, encompassing approximately a one and one quarter mile radius from the City of Santa Monica's Charnock Wellfield.

"Charnock Wellfields" or "the Wellfields" shall mean the drinking water supply wells previously operated by the City of Santa Monica (COSM) at 11375 Westminster Avenue, Los Angeles, and the drinking water supply wells previously operated by the Southern California Water Company (SCWC) at 11607 and 11615 Charnock Road, Los Angeles.

"Contamination" shall mean the presence of contaminants and a condition of pollution, as defined in the California Water Code.

"Days" shall mean calendar days, unless otherwise specified.

"DHS Policy 97-005" shall mean the California Department of Health Services November 5, 1997 Policy Memo 97-005 Policy Guidance for Direct Domestic Use of Extremely Impaired Sources

"Effective Date" shall mean July 3, 2000.

"Impacted Parties" shall mean the COSM and SCWC.

"Potential Source Sites" or "PRP Sites" shall mean the underground gasoline storage tank systems and gasoline product pipelines and the property on which they are located within the Charnock Sub-Basin Investigation Area identified on Figure 1 to the Agencies' SA/AOC.

"Production aquifer" or "Silverado aquifer" shall mean the saturated zone within the investigation area that a) in areas where the San Pedro aquitard is present, is located below, and separated from, the Shallow Unnamed aquifer by the confining layer referred to as the San Pedro aquitard; and b) in areas where the San Pedro aquitard is absent, is the first laterally extensive saturated zone encountered.

"Release" in this Scope of Work shall mean "discharge" or "disposal" as those terms are used in RCRA and the California Water Code.

"Respondents" shall mean Shell Oil Company, Shell Oil Products Company, and Equilon Enterprises LLC.

"San Pedro aquitard" shall mean the confining layer that separates the Shallow Unnamed aquifer from the Production (Silverado) aquifer in some portions of the Charnock Sub-Basin Investigation Area. In the Charnock Sub-Basin Investigation Area, the top of the San Pedro aquitard is typically found at a depth of approximately 30 to 40 feet below mean sea level. The San Pedro aquitard varies in thickness and is locally absent in some portions of the Investigation Area. The textural composition of the San Pedro aquitard varies from clay to silty sand.

"Shallow Unnamed aquifer" shall mean the laterally persistent saturated zone that exists on top of the San Pedro aquitard. The base of the Shallow Unnamed aquifer, where present, occurs above the San Pedro aquitard. The Shallow Unnamed aquifer is absent at some locations within the Charnock Sub-Basin Investigation Area.

"Site" or "the Charnock Sub-Basin MTBE Site" shall mean the extent of MTBE and other gasoline constituent contamination in the Charnock Sub-Basin

"Source Sites" or "Source Site Facilities" shall mean the property and related underground gasoline storage tanks systems within the Charnock Sub-Basin Investigation Area, identified in Attachment B to the SA/AOC.

"Water Replacement" shall have the definition provided for that term in EPA Orders Docket Nos. RCRA 7003-09-99-0007 and RCRA 7003-09-2000-0002.

C. PROJECT PLANNING AND PROGRESS REPORTING

Task 1 – Work Plan and Project Schedule

Task 1.1 – Work Plan

The Respondents shall submit a detailed work plan for completing all of the tasks in this SOW within 45 days of the effective date of the SA/AOC. The work plan shall include a work breakdown structure for all tasks included in this SOW and all sub-tasks to be completed by the Respondents. The written plan shall also include a Sampling and Analysis Plan (SAP), Quality Assurance Plan (QAP) and Health and Safety Plan (HASP) to cover all work that the Respondents anticipate will be performed to complete the tasks required by this SOW. The SAP, QAP and HASP shall be consistent with EPA guidance and the General Requirements. The Respondents shall also include a detailed description of the complete project team including name, role, company affiliation, address, phone number, mobile phone number/pager, e-mail address, fax number, and Curriculum Vitae (CV). The project plan shall also include a project team organization chart showing lines of authority. When changes occur in the project plan, SAP, QAP, HASP, project schedule and/or project team, the appropriate documents shall be updated and submitted along with the Monthly Progress Report described in Task 2.

Task 1.2 – Project Schedule

The Respondents shall create an overall Project Schedule utilizing MS Project 98 (or an equivalent software package upon approval of the Agencies). This Project Schedule shall be updated by the Respondents on a monthly basis and included in both electronic and hard copy format in the Monthly Progress Report.

Task 2 – Progress Reporting

The Respondents shall provide Monthly Progress Reports in both electronic and hard copy formats. This reporting will enable the Agencies to track and oversee progress on the project. These reports shall include the following:

- Progress for the reporting period on each individual task and sub-task.
- Overall progress to date on each individual task and sub-task.
- Incident reports, access problems, public inquiries/complaints, regulatory issues and contacts.
- A summary of all environmental sampling activities pursuant to this SOW during the reporting period.
- A description of the work anticipated to be performed on each individual task and sub-task during the following quarter.
- A copy of all final minutes from technical meetings (see below).
- A list of all outstanding action items to be addressed by the Respondents, Agencies and Impacted Parties in the following quarter.
- A description of any other problems encountered or anticipated in performing the Tasks required by this SOW and Respondent's plans for addressing these problems.

Task 3- Technical Meetings

The purpose of these meetings will be to provide a forum, on a regular basis, to discuss technical and project management issues related to implementation of this SOW.

Respondents shall schedule and host monthly (or at another frequency as approved by the Agencies) technical meetings with Agencies and Impacted Parties to discuss project progress, data, analysis of data, action items, and other issues.

D. ANALYSIS OF ALTERNATIVES FOR INTERIM PROVISION OF DRINKING WATER

The purpose of the tasks in this section is to evaluate and recommend longer term interim drinking water response measures which could be implemented to provide the Impacted Parties' with drinking water until the Agencies determine, if any, further action is necessary to supply water to the Impacted Parties

Task 4 – Interim Provision of Drinking Water Information Summary Report

The Information Summary Report is required in order to provide the data necessary to effectively and thoroughly evaluate the options for interim provision of drinking water.

The Respondents shall prepare a report that summarizes information relevant to the analysis of options for the provision of drinking water. This report shall include but is not limited to:

Charnock Sub-Basin Municipal Water Supply Production Facilities and Operations:

- Water supply well (public, industrial, agricultural, etc.) construction details (all current and past wells), where available.
- The locations of all water supply wells.
- A general history of wellfield development and operations.
- Historical water production rates in the Charnock Sub-Basin (average, peak yearly, monthly, daily).
- Historical COSM and SCWC drinking water demand rates (average, peak yearly, monthly, daily)
- A review and summary of all wellfield operational permits and permit conditions.
- COSM and SCWC Drinking water infrastructure description relevant to the Charnock Project.
    - Facility layout
    - Equipment list
    - Water storage and distribution facilities
    - Water conveyance facilities
    - Water treatment facilities
    - Staffing requirements
    - Current Permits
    - Sub-Basin water balance information
- The impact of contamination (directly and indirectly) on such infrastructure (e.g. chloramines and reservoir issues).

Impact of possible facility modifications:

- The impact of possible facility modifications, including but not limited to a separate well-head treatment plant, on drinking water infrastructure.
- Utilities availability (e.g. power, discharge facilities, . . .) for possible facility modifications.
- Permitting issues for possible facility modifications, including a separate well-head treatment plant.

Reports Required for DHS Review of Use of Extremely Impaired Sources

- A separate report to comply with Task 1 of the Department of Health Services (DHS) Policy 97-005, including a review and summary description of hydrogeologic and contaminant conditions in the Charnock Sub-Basin.
- A separate report to comply with Task 2 of the DHS Policy 97-005, including a review and summary description of the quality of groundwater within the Charnock Sub-Basin.

Task 5 – Completion of Treatability Technology Performance Report

The Treatability Technology Performance Report is required to provide the information necessary to evaluate the ability of various treatment technologies to effectively remove MTBE and other gasoline constituent contamination from contaminated groundwater.

The Respondents shall prepare a Treatment Technology Performance Report. Technologies included in the report shall include at a minimum GAC, AOP, resin adsorption, and air stripping. The report shall include all data generated as part of the Charnock Wellfield Startup LLC treatability testing, research and analysis, and as part of the treatability testing and treatment at potentially responsible party (PRP) Site 11 (Abrams Shell). Additionally, the report shall include a literature review/summary of all relevant information regarding the treatment of fuel oxygenates in drinking water. The report shall address MTBE, TBA, and other gasoline constituent contamination found in the Charnock Sub-Basin that may be relevant to pump and treat remediation and drinking water wellhead treatment.

For each technology addressed, the report must include mass balances identifying contaminant destruction and/or transformation mechanisms (e.g. biodegradation, sorption, oxidation, . . .). The report shall also identify potential treatment by-products.

The report shall discuss all bench scale and pilot studies conducted at PRP Site 11, the Charnock Wellfield, the Arcadia Wellfield, and any other bench scale studies in other settings using Charnock Sub-Basin water. The report shall include descriptions of process configuration and flow rates. The report shall discuss and summarize all influent and effluent results for constituents analyzed, formation of byproducts and treatment for residuals, and describe analytical methods. The report shall also provide the details related to problems encountered during process implementation and solutions applied.

Task 6 – Analysis and Recommendation of Alternatives for Drinking Water Response

The purpose of this task is to evaluate and recommend longer term interim drinking water response measures which could be implemented to provide the Impacted Parties with drinking water until the Agencies determine, if any, further action is necessary to supply water to the Impacted Parties.

Respondents shall conduct an Analysis of Alternatives ("Drinking Water AoA") and prepare a Respondents' Interim Response AoA Report (Drinking Water AoA). The Drinking Water RAoA shall present an evaluation of Charnock Sub-Basin interim response alternatives, including all of the analyses, information and evaluations required in this Task 6, and Tasks 6.1 through 6.10. The Drinking Water RAoA shall recommend a proposed alternative(s) that will prevent exposure to contaminated groundwater and insure a reliable source of drinking water. Respondents may also be required to provide a Revised Drinking Water RAoA.

Respondents shall conduct the Drinking Water RAoA in accordance with the following evaluation criteria (where applicable).

The Four General Criteria

(1) **Overall protection of human health and the environment** - how the alternatives provide human health and environmental protection.

(2) **Attainment of Response Objectives** - ability of alternatives to achieve the purposes prescribed for response measures pursuant to this SOW.

(3) **Control of sources of releases** (and impact on control of sources of releases) - how the alternative reduces or eliminates (to the maximum extent possible) further releases, and prevents migration.

(4) **Compliance with standards** - how alternatives assure the compliance with existing standards and requirements set by federal, State, and local agencies that were put in place to protect human health and the environment (e.g., DHS permit requirements, air permitting requirements, noise abatement requirements, zoning requirements (including any conditional use requirements), fire code requirements).

Any interim response measures proposed, as a viable alternative must, at a minimum, meet the four General Criteria to the maximum extent practical. All viable alternatives shall then be compared using the six Decision Factors.

The Six Decision Factors are as follows:

(1) **Long- term reliability and effectiveness** - magnitude of residual risk, including the adequacy and reliability of controls;

(2) **Reduction of toxicity, mobility or volume of wastes** - Treatment process used and materials treated, amount of hazardous constituents destroyed or treated, degree of expected reduction in toxicity, mobility, or volume, degree to which treatment is irreversible, type and quantity of residuals remaining after treatment;

(3) **Short-term effectiveness** - Protection of community during response actions, protection of workers during response actions, environmental impacts, and time until response action objectives are achieved;

(4) **Implementability** - Ability to construct and operate technology; reliability of technology; ease of undertaking additional interim response measure(s) if necessary; ability to monitor effectiveness of interim response measure(s); coordination with other Agencies; availability of off-site treatment, storage and disposal services and specialists to the extent required for the interim response measure(s); availability of prospective technologies; availability of land; availability of adequately trained operation and maintenance personnel and replacement equipment; logistics;

(5) **Cost** - Capital costs, general and administrative costs, operating and maintenance costs, all discounted to present worth (utilizing range of discount rates (e.g. 4%-8%)) ; and

(6) **Community Acceptance** - Assessment of the issues and concerns the public may have regarding each of the alternatives.

The order of the decision factors listed is not intended to establish an ordinal ranking, nor does it suggest the relative importance each factor might have at any particular site.

Task 6.1 - General Response Alternatives Identification and Screening Evaluation

Respondents shall analyze all interim drinking water response alternatives with respect to the primary goals of the interim measure(s), which is to prevent exposure to contaminated groundwater and ensure a reliable source of drinking water. For problems involving groundwater contaminated with volatile organic contaminants, the presumptive approach involves the following general response alternatives: 1) institutional controls, 2) plume control, 3) replacement

water supply, and/or 4) wellhead treatment. At a minimum, each of these alternatives must be analyzed.

Respondents must conduct an analysis of these general response alternatives and recommend a preferred general response or combination of general response alternatives. This analysis shall also identify the general response alternatives that the Respondents propose to eliminate from further consideration and the rationale for their elimination.

Based on the preferred general response or combination of general response alternatives, Respondents shall identify the universe of interim response alternatives.

The Respondents shall screen the interim response alternatives to eliminate those that would likely prove infeasible to implement given the site-specific conditions. The screening is accomplished by evaluating technology limitations (e.g., for volume, area, contaminant concentrations, interferences, etc.) and using contaminant and site characterization information from previous investigations to screen out technologies that cannot be fully implemented at the Site. The screening process must focus on eliminating those response alternatives that have severe limitations given the site-specific conditions. The screening step shall indicate one or more interim response alternatives that Respondents propose to evaluate in detail during Tasks 6.2 through 6.11.

At a minimum, Respondents must perform a detailed evaluation (Tasks 6.2 through 6.11) of an interim response alternative that is capable of: 1) delivering at least 6897 acre-ft of drinking water per year from the Charnock Wellfields to the Impacted Parties; 2) reducing an influent concentration of MTBE from 2 mg/l and TBA from 200 µg/l to levels acceptable for serving as drinking water; and 3) satisfying a set of peak flow delivery conditions from the Charnock Wellfields to be determined by the Agencies. The Agencies will specify the set of peak flow delivery conditions to be satisfied by this interim response alternative in the approval of the Task 6.1 deliverable.

Respondents must fully document the screening of alternatives. Respondents shall list the alternatives proposed for further evaluation and document the reasons for excluding any alternatives. Respondents shall prepare a table that summarizes their findings.

The Respondents shall submit this evaluation as a letter report to the Agencies entitled “General and Interim Response Alternatives Identification and Screening Evaluation.”

Tasks 6.2 through 6.10 provide the requirements for the Analysis of Alternatives Detailed Evaluation Report to be submitted pursuant to Task 6.11.

Task 6.2 - Institutional Control Alternatives Detailed Evaluation

Respondents shall evaluate the ability of institutional control options to prevent exposure to contaminated groundwater and insure a reliable source of drinking water.

Task 6.3 - Plume Control Alternatives Detailed Evaluation

Respondents shall evaluate the ability of plume control options (hydraulic control of contaminant migration) to prevent exposure to contaminated groundwater and insure a reliable source of drinking water.

Task 6.4 - Water Replacement Alternatives Detailed Evaluation

Respondents shall evaluate the ability of water replacement options to prevent exposure to contaminated groundwater and insure a reliable source of drinking water. The Respondents shall evaluate options for providing replacement water to the COSM and SCWC. This evaluation shall utilize the criteria presented above to analyze water replacement options including but not limited to continued purchase from Metropolitan Water District of Southern California (MWD) or City of Los Angeles, purchase and delivery of water from another private water supplier, construction/use of wells in alternative locations, and surface water capture and treatment (including salt water desalination). All options evaluated shall consider the general criteria and decision factors above, including any required treatment to meet DHS drinking water standards and other applicable, or relevant and appropriate federal, State, and local laws, regulations, and standards.

Task 6.5 - Wellhead Treatment Alternatives Detailed Evaluation

Respondents shall evaluate the ability of wellhead treatment options to prevent exposure and insure a reliable source of drinking water. The Respondents shall identify, evaluate, and recommend a treatment train technology approach for ex-situ removal of MTBE, other gasoline constituents, and any other Contamination in the extracted groundwater. The evaluation criteria recommended above shall be utilized for the evaluation. All treatment train technology approaches shall be capable of removing MTBE, other oxygenates, degradation by-products, other gasoline constituents, and any other Contamination in the Charnock Wellfields' source water down to levels acceptable for drinking water.

At a minimum, Respondents shall evaluate air stripping, activated carbon, advanced oxidation processes (AOP), resin adsorption, biological treatment and all appropriate combinations of these technologies. If Respondents have identified other treatment methodologies, in addition to those listed above, they may be included as part of Respondents' evaluation.

The report shall include information including scale and configuration of extraction and treatment, remediation time frame, rates of flow for treatment, and permits required (local, state, federal). The Respondents shall evaluate transformation of contaminants through each unit process and discuss technologies for treatment/management of byproducts. The report shall discuss issues including health and safety concerns and community relations concerns. The report shall present Capital and O&M costs for a full Wellfields flow treatment system for all the technologies. The report shall discuss disposal options for treated groundwater during pilot testing, and startup periods and/or maintenance operations.

Task 6.5.1 - Treatment Plant Effluent Management Options

Respondents shall evaluate options for effluent management for interim response measures that include the extraction and treatment of groundwater. The evaluation shall utilize the criteria provided in Task 6 above and shall include, at a minimum, the following options: discharge to the sanitary sewer, discharge to the storm drain system, reinjection, delivery for domestic use, and/or delivery for other beneficial uses.

Task 6.5.2 - Treatment System Siting Evaluation

Respondents shall identify, evaluate, and compare sites that could be used for construction and operation of a groundwater treatment plant for removal of MTBE and other oxygenates, degradation by-products, and/or other gasoline constituent contamination from the water produced from the Charnock Wellfields. Respondents shall also recommend the potential sites that they find to be the most suitable for this purpose.

CRITERIA FOR DETAILED EVALUATION OF TREATMENT SYSTEM SITING

Due to the uncertainties related to (a) the spatial distribution of contamination affecting the Charnock Wellfields, (b) the concentrations of contaminants expected to be in each production well's effluent, (c) duration of aquifer restoration, and (d) the fluctuations in water demand of COSM and SCWC customers, Respondents shall include in their evaluation sites that can accommodate a wellhead treatment plant and water storage facilities that meet the following criteria:

1. Capable of at least 30 years of operation;

2. To the maximum extent practicable, the preferred sites shall be in areas currently zoned commercial, manufacturing or industrial;

3. To the maximum extent practicable, the preferred site locations shall be identified that have the least negative long-term impacts on the community;

4. To the maximum extent practicable, Respondents shall evaluate potential sites with respect to the ability to obtain ownership, leasehold, or other entitlement for use for a 30 year period, all necessary right of ways, utilities, and permits (including conditional use permits) for construction of the groundwater treatment plant, water storage facilities and any associated distribution piping systems; and

5. The analysis must consider that siting and treatment plant and water storage facility construction thereon must comply with all applicable requirements in the California Environmental Quality Act (CEQA), including the preparation of a full Environmental Impact Report (EIR), if deemed necessary by the lead agency for CEQA.

Task 6.5.3 - Site Selection Report

Respondents shall prepare a Site Selection Report that includes the following information:

1) Identification of Respondents' preferred site and two alternate sites; a discussion of how sites were chosen; a discussion of costs, ability to obtain permits, impacts on surrounding community, current land use, zoning of site and surrounding areas, and current site ownership; a map showing each proposed site in relation to the Charnock Wellfields and Arcadia Water Distribution Facility;
2) A discussion of the availability for purchase or lease, in order to utilize each site for a groundwater treatment plant;
3) A discussion of the availability of the necessary right of ways, utilities, and permits in order to construct and operate a groundwater treatment plant at preferred and alternate sites; and
4) A discussion of community acceptance issues associated with each potential site.

Task 6.6 – Regulatory and Institutional Analysis of Alternatives

As a part of the AoA, Respondents shall identify, evaluate and describe how the following requirements affect implementation of all alternative remedies:

- Permit requirements.
- Federal laws and regulations.
- State laws and regulations.
- Local laws, regulations, and ordinances.

- Building codes.
- Land use/zoning requirements/restrictions.
- Noise restrictions.

Task 6.7 – Hydraulic Analysis for Pumping Alternatives

For all alternatives involving groundwater pumping in either the Charnock Sub-Basin (as part of tasks 6.3, 6.4 and 6.5), or in other sub-basins of the Santa Monica Basin (Task 6.5), Respondents shall provide the following information for each of the alternatives:

- Figures depicting 1, 5, 10, 25, 50 and 100 year capture zones (e.g., flowlines) with pathline arrowheads at approximately 1 year intervals.
- Tabular results of water balance, including domain boundary inflows/outflows.
- Maps of head distribution (equipotentials) throughout the entire domain.
- Tabular list of all model hydrogeological input parameters used (with sources referenced).
- Results of steady state and transient model calibrations, including convergence criteria and uncertainty analysis. Transient calibrations for both pump tests and historic basin pumping periods should be provided.

Task 6.8 - Effective Monitoring and Treatment Analysis for All Alternatives Involving Treatment of Water from an Extremely Impaired Source for the Purpose of Providing Drinking Water (DHS 97-005 Item 4)

The Respondents shall conduct the analysis required by Item 4 of DHS Policy 97-005 for each alternative involving treatment of water from an extremely impaired source for the purpose of providing drinking water.

Task 6.9 – Human Health Risks Associated with the Failure of Drinking Water Treatment Alternatives.

The Respondents shall conduct the analysis required by Item 5 of DHS Policy 97-005 for each alternative involving treatment of water from an extremely impaired source for the purpose of providing drinking water.

Task 6.10 – Identification of Alternatives to the Use of the Extremely Impaired Source and Compare the Potential Health Risk Associated with these to the Project's Potential Health Risk.

The Respondents shall perform Item 6 of DHS Policy 97-005.

Respondent shall summarize the viable alternatives (identified as part of Task 6.1) to use of the extremely impaired source. The Respondents shall then assess risk associated with each alternative, including the risks as a result of failure and the probability of failure of each alternative, and compare risk potential to the risk potential for the use of the extremely impaired source.

Task 6.11 - Analysis of Interim Alternatives Reporting

As part of reporting, the Respondents shall submit:
(a) General and Interim Response Alternatives Identification and Screening Evaluation (Task 6.1),
(b) Analysis of Alternatives Detailed Evaluation Report (Tasks 6.2 through 6.10)

These reports shall be submitted in accordance with the Schedule of Compliance in Section I of this SOW.

The Respondents' Drinking Water Analysis of Alternatives Detailed Evaluation Report (Drinking Water RAoA) shall include a detailed analysis of alternatives and the Respondents' recommended alternative for interim provision of drinking water. The report shall include all of the information and analyses required by all sub-tasks of Task 6 of this SOW.

E. REGIONAL INVESTIGATION (RI)

Task 7 – Quarterly Groundwater Monitoring

The purpose of Task 7 is to require a comprehensive groundwater monitoring program for all monitoring wells in and near the Charnock Sub-Basin Investigation Area, and to require a comprehensive analysis of all groundwater data on a quarterly basis for all groundwater monitoring activities for the Charnock Sub-Basin Investigation Area.

"Respondents' Monitoring Wells" shall mean wells or any other groundwater monitoring devices (e.g., piezometers, multi-channel well) installed by, on the property of, or otherwise exclusively owned by Respondents.

"Other Monitoring Wells" shall mean wells or any other groundwater monitoring devices (e.g., piezometers, multi-channel well) installed by, on the property of, or otherwise exclusively owned by parties other than Respondents.

"Jointly Owned Monitoring Wells" shall mean all wells installed by Geomatrix Consultants, Inc. (Geomatrix), that were jointly installed and paid for by the respondents and others during the Charnock Sub-Basin regional investigation activities conducted during 1996 to 2000.

Task 7.1 – Quarterly Regional Groundwater Well Gauging, Sampling, and Analysis

On a quarterly basis on the schedule provided in Table 2 (SOW Section I, Schedule of Compliance), Respondents shall gauge groundwater levels at, and collect and analyze groundwater samples from, all Respondents' Monitoring Wells and Jointly Owned Monitoring Wells in accordance with the Agencies' requirements set forth in the approved Work Plan to be developed under Task 1.1 of this SOW. The Respondents shall follow the analytical protocol specified by the Agencies in the Agencies' General Requirements, except as otherwise modified pursuant to the SA/AOC and approved Work Plan. The quarterly analytical suite shall include benzene, toluene, ethylbenzene and total xylenes (BTEX), total petroleum hydrocarbons as gasoline (TPHg), fuel oxygenates (including MTBE, TBA, DIPE, ETBE, and TAME), and any other potential pollutants of concern (PPCs).

The second quarterly event of each year shall include reporting of volatile organic compounds (VOCs) and tentatively identified compounds (TICs) from USEPA Method 8260B, in accordance with the procedures set forth in the approved Work Plan developed under Task 1.1 of this SOW. Should VOCs or a TIC of concern to the Agencies be detected in any well, then subsequent samples from such a well shall continue to be analyzed for the complete list of analytes in USEPA Method 8260B (including TICs, if necessary), until such VOCs or TIC are not detected or are no longer of concern to the Agencies.

In the Work Plan developed under Task 1.1 of this SOW, Respondents shall propose a list of selected Respondents' Monitoring Wells and Jointly Owned Monitoring Wells from which to collect and analyze groundwater samples for general water quality parameters (pH, alkalinity,

major ions). At the Agencies' discretion, the Respondents shall also analyze groundwater samples collected from these wells for other parameters, including biodegradation indicators.

Task 7.2 – Regional Quarterly Monitoring Results Table

Respondents shall submit a Regional Quarterly Monitoring Results Table (QMR Table) in accordance with the schedule set forth in Table 2 of this SOW. The QMR Table shall contain the following information from Jointly Owned Monitoring Wells and additional monitoring wells installed during implementation of Task 12 of this SOW:

1) Well name,
2) Screen Interval (elevation and feet below ground surface),
3) Filter pack interval (elevation and feet below ground surface),
4) Casing diameter and construction,
5) Total depth (elevation and feet below ground surface),
6) Date of installation,
7) Water level (elevation and feet below ground surface),
8) Water level change since last water level gauging event,
9) MTBE and other oxygenate concentrations and detection limits,
10) TPHg concentration and detection limits,
11) BTEX concentrations and detection limits, and
12) Other analyte concentrations and detection limits

Task 7.3 - Charnock Sub-Basin Investigation Area Quarterly Groundwater Monitoring Report

The Respondents shall submit Charnock Sub-Basin Investigation Area Quarterly Regional Groundwater Monitoring Reports in accordance with the schedule set forth in Table 2 of this SOW. This report shall contain the all quarterly monitoring data, and analysis of the data, from all Respondents' Monitoring Wells, Other Monitoring Wells, and Jointly Owned Monitoring Wells to provide a broader picture of hydrogeologic and contaminant conditions within the Charnock Sub-Basin Investigation Area. This report shall be provided in the format specified in Section H of this SOW and shall include the analysis specified in the approved Work Plan developed under Task 1.1 of this SOW.

Task 8 – Database / Geographical Information System

The purpose of this task is to create and provide the tools necessary for effective evaluation of the data generated pursuant to all investigations of MTBE and other gasoline constituents affecting the Charnock Sub-Basin.

Task 8.1 – Environmental Database Update, Data Objects Analysis, and Quality Assurance

The Respondents shall provide a relational database utilizing Arcview (or an equivalent software package upon approval by the Agencies) which updates the data and includes the data elements contained in the Geomatrix 7/99 database. The database shall include all environmental data generated from environmental investigations occurring between 1/1/1990 – 12/31/1999 for all Potential Source-Sites identified as part of the Charnock MTBE Investigation and for all regional investigation activities. The database will also include data for the period after January 1, 1980 provided to the Respondents in the appropriate electronic format.

The Agencies will require all parties with responsibility for Potential Source-Sites to provide all environmental data generated from environmental investigations occurring after January 1, 1980 in an electronic format to be specified by the Agencies in consultation with Respondents.

The Respondents shall propose a QA/QC process and perform all QA/QC necessary in order to certify accuracy of data transcription into the database in accordance with the QA/QC process approved by the Agencies. The database shall include all pipeline data, UST site investigation data, and regional investigation data.

Task 8.2 -- GIS Enhancements

The Respondents shall develop GIS files delivered to the Agencies as part of the database submittal (Task 8.1) to add to and update the following coverages in the Geomatrix 7/99 database:

- Current Aerial Photograph
- Source-Sites UST systems detail plans (1980-present)
- Historical and Active Production Wells
- Gasoline Product Pipelines
- Water Distribution Supply Lines
- Monitoring Wells
- Vapor Wells
- Soil Borings
- Hand Auger Borings
- Soil Gas Sample Points
- Faults
- Site Plans Showing Historical and Current Geo-referenced Sample Locations

The coverages above shall be layered on a scaled base map of the region. The GIS objects such as sampling locations shall be linked to the database with geo-referencing.

Task 8.3 – Dedicated Computers with Pre-Loaded Database/GIS System

The Respondents shall loan, to the Agencies and Impacted Parties, stand-alone PC workstations (PCs) and all peripheral equipment (i.e. monitor, keyboard, mouse, etc.) necessary to operate the Database/GIS System. The PCs shall be delivered ready to operate ("plug-and-play"), pre-loaded with all the necessary software and data files to operate the Database/GIS System. Respondents shall make these computers available, at a minimum, through the termination of Respondents' obligations pursuant to the SA/AOC. Respondents may then request that the loaned computers be returned within 180 days or negotiate an extension of the loan.

A total of five complete workstations will be loaned by Respondents. One complete workstation and peripheral equipment shall be loaned to each the following:
A) Regional Board
B) US EPA
C) US EPA Contractor
D) COSM Contractor
E) SCWC Contractor

Task 8.4 – Quarterly Updates of Database/GIS System

The Respondents shall prepare and submit (on Compact Disks (CDs)) updates to the database/GIS system on a quarterly basis. These CDs shall include updated database and GIS files, with instructions on how to integrate the update with the existing Database/GIS System. This update shall be delivered as part of task 7.2.

Task 9 – Conceptual Flow and Transport Model Report

Respondents shall determine if any of the additional data collected since the original Geomatrix conceptual model was completed has caused any significant changes in the fundamental understanding of the hydrogeologic flow system in and around the Charnock Sub-Basin and shall submit this analysis as part of a Conceptual Flow and Transport Model Report. In this report, the Respondents shall also provide an update/revision to the Conceptual Model Report for the Charnock Sub-Basin previously submitted to the Agencies by Geomatrix on behalf of Shell, Chevron, and Exxon and include a conceptual discussion of MTBE and other gasoline constituent fate and transport in the Charnock Sub-Basin.

Task 10 – Numerical Groundwater Flow Model and Report

Numerical groundwater flow modeling is required to synthesize and analyze the multitude of factors in complex groundwater and contaminant problems and the interaction between these factors. Therefore, the conceptual model (Task 9) shall form the basis for development of a numerical model.

The numerical model shall allow for a more detailed and rapid synthesis, analysis and interpretation of the multitude of factors and their interaction. Thus, the numerical model shall be available to gain insight into the controlling parameters in the Sub-Basin and as a framework for assembling and organizing field data and formulating ideas about the system dynamics both regionally and locally. The model may also be used to help establish locations and characteristics of aquifer boundaries and assess the quantity of water within the system (including safe yield estimates), the amount of recharge to the aquifer, and movement of water through the system. In addition, the numerical model may be used to evaluate the pathways by which contaminants could have migrated from their release point to the Wellfields and to simulate the consequences of a proposed remedial action, such as pumping groundwater from a specific well location.

Task 10.1 Groundwater Flow Modeling

The model shall be constructed to meet the following objectives: evaluate regional measures needed for the Silverado and shallow unnamed aquifers to control the movement of groundwater affected by MTBE and other gasoline constituent contamination and to protect areas of unaffected groundwater, evaluate potential interim restoration measures (Section F of this SOW) to capture and remove groundwater affected by this contamination, provide a tool to evaluate and manage concurrent regional production and remediation of groundwater, and evaluate potential regional groundwater flow pathways from source areas.

Initially, a three-dimensional (3D) groundwater flow model shall be developed for the Charnock Sub-Basin Investigation Area. The steps involved in the development of a 3D groundwater flow model include the following:

- Development of a conceptual hydrogeologic flow model (Task 9) based upon data collected in the field as part of investigations performed in the Sub-Basin, background hydrogeologic information, and published groundwater texts.
- Selection of an available commercial groundwater flow code that could satisfy the modeling objectives through the implementation of these tasks.

- Establishing a hydro-stratigraphic framework and construction of a numerical flow model based upon the conceptual flow model.
- Discretization of hydraulic parameters within the model domain.
- Calibration of the numerical flow model to approximate field head-and-flow relationships (both steady-state and transient calibrations).
- Modification of the framework, model structure, hydraulic parameter values or their discretization through sensitivity analysis to improve the calibration.
- Combination of the numerical flow model with a particle-tracking code.
- Modification of the model framework or structure, hydraulic parameter values and their discretization, through sensitivity analysis to improve the calibration.
- Comparison of the results of the numerical flow with the conceptual flow model.
- Identification of data gaps that may be precluding the development of the most representative conceptual model and approach, and in turn, the best numerical groundwater flow model.
- Recommendations for the collection of the data necessary to fill in the data gaps.
- Refinement of the conceptual flow model and approach, including revision and re-calibration of the numerical groundwater flow model, based upon additional data.

Task 10.1.1 – Submittal of Groundwater Flow Model

This model shall be submitted to the Agencies and Impacted Parties in electronic format on a computer system capable of displaying and modifying the input parameters, running modeling calculations, and displaying output results on a CRT and in hard copy. The computer system provided for this task can be the same system submitted pursuant to Task 8.3.

Task 10.1.2 – Groundwater Flow Modeling Report

Respondents shall prepare a Numerical Groundwater Flow Model Report that contains information delineated in the "Standard Guide for Application of a Ground-Water Flow Model to a Site-Specific Problem," ASTM, Volume 4.09, Standards D 5447-93, D 5490-93, D 5609-94, D 5610-94, D 5611-94. Documentation for the groundwater flow model must include the following elements.

a. Conceptualization of the hydrologic system, including definition of boundary conditions, geologic controls (layer thickness, continuity, and lithologies at both the regional and site scales), and hydrologic controls (aquifer properties, hydraulic gradients, and fluxes in/out of the study area, such as precipitation, ground water/surface water interactions, extraction, etc.). A water budget of inflows and outflows should be developed as part of this effort. The conceptual model for this system and the controls on ground-water flow should be discussed in detail and rationale with references to supporting data provided for each aspect of the model.

b. The information base supporting development of the model should be tabulated and provided as geologic and well construction logs, tables of hydraulic heads in monitoring wells depicting temporal variations, temporal history of pumping rates in extraction wells, data supporting recharge estimates, etc. Maps showing the spatial distribution of these data points should be produced. The information base should be critically evaluated for data deficiencies that may result in limitations to the development or use of the model.

c. Model construction should be documented, identifying the spatial distribution of input parameters (e.g., hydraulic conductivity, water levels, flux rates, etc.) and the temporal distribution (i.e., steady state or transient state). Spatial discretization and grid

dimensions should be discussed. The definition of time steps should also be discussed, as appropriate.

d. Steps used in calibration of the model should be discussed in detail, including methodology, calibration targets, and adjustments in input parameters required for calibration. The residual differences between the observed and simulated variables should be tabulated, plotted, and analyzed.

e. A sensitivity analysis should be performed to quantify the uncertainty in the calibrated model due to uncertainty in estimates of aquifer properties, boundary conditions, etc. The methodology used in this analysis should be discussed in detail.

f. A detailed description of the application of the calibrated model in each predictive scenario should be provided. This description should include discussion of the rationale for each scenario that is simulated.

Task 11 – Current Conditions Report

The Respondents shall prepare a Current Conditions Report (CCR) with annual updates which thoroughly describes the MTBE and other gasoline constituent contamination affecting the Charnock Sub-Basin Investigation Area and other areas within the Charnock Sub-Basin , and the steps that have been taken to date to address this problem.

Task 12 - Regional Field Investigation

The Regional Investigation activities discussed herein are required in order to further define the MTBE and other gasoline constituent contaminant distribution, background contaminant conditions, and hydrogeology information concerning the Charnock Sub-Basin Investigation Area. Additional Regional Investigation activities may be identified to support interim provision of drinking water or interim restoration measures.

Task 12.1 – Regional Investigation Work Plan

Respondents shall provide a Work Plan for conducting Regional Investigation to further define the nature and extent of MTBE and gasoline constituent pollution in the Charnock Sub-Basin Investigation Area. Information gained from this investigation will be used for the purposes of (a) provision of interim drinking water and (b) for interim restoration measures within the Charnock Sub-Basin Investigation Area. In the Work Plan, Respondents shall also propose investigation necessary to evaluate MTBE and other gasoline contamination outside of the Investigation Area that may affect the Investigation Area in the future. The investigation shall also include an evaluation of the possible presence of “detached contaminant plumes”, and further define hydrogeologic understanding (e.g. hydrogeologic significance of the Charnock Fault, spatial extent and character of the San Pedro aquitard) of groundwater flow within the Charnock Sub-Basin.

The Respondents shall characterize the following as part of the Regional Investigation

1. The hydrogeologic significance of the Charnock and Overland Faults.
2. The extent and hydrogeologic character of the various hydro-stratigraphic units within, and immediately adjacent to, the Sub-Basin, with particular emphasis on the San Pedro aquitard.
3. Groundwater flow conditions (lateral and vertical) and general water quality within, and immediately adjacent to, the Sub-Basin.

4. The nature, presence, magnitude, extent (lateral and vertical), temporal and spatial variation, and origin of groundwater contamination within, and immediately adjacent to, the Sub-Basin.
5. The possible presence of detached contaminant plumes within the Sub-Basin.

Respondents shall, at a minimum, propose in the Work Plan locations for regional investigation borings/wells as described in Table 1 below (refer to Figure 2, Initial Regional Investigation Areas).

TABLE 1
INITIAL REGIONAL INVESTIGATION LOCATIONS

AREA	MINIMUM NUMBER OF BORINGS/WELLS	COMMENT
1	7 borings 10 monitoring wells	To the maximum extent practicable, install four Upper Silverado aquifer (USA) and six Shallow Unnamed aquifer (SUA) wells. Respondents shall advance borings at the seven locations identified on Figure 3 (Area 1 Proposed Assessment Locations).
2	Discrete depth sampling in one or more production wells 1 boring 1 monitoring well location with 2 screened intervals	Collect discrete depth water samples from one or more COSM production wells. The discrete depth sampling methodology to be used and the number of discrete depth samples to be collected will be determined during the Agencies' approval of the work plan. Elevations of the two intervals to be screened will be determined by the Agencies pending analytical results of discrete depth water samples. If no contamination is detected in the discrete depth water samples, one interval shall be screened across the current water table and one shall be screened across the water table at historical pumping conditions.
3	1 boring	
4	2 borings	
5	1 boring	
6	1 boring	
7	2 borings	

Respondents shall propose to advance continuously cored borings at all drilling locations. Respondents shall propose to collect a sufficient number of water samples at all boring locations utilizing methodologies that will adequately characterize the vertical variation in water quality at each boring location. Respondents shall provide a rationale for the number of water samples and sampling methodologies proposed at each boring location. If Respondents propose the use of a driven (e.g. SimulProbe) type discrete depth sampler, Respondents shall propose to collect a minimum of 6 discrete-depth samples, and the Agencies may require up to 10 discrete-depth samples, at each boring location. Respondents shall specify target total depths for each boring in the Work Plan. Respondents shall propose geophysical logging in accordance with the Agencies' General Requirements at all drilling locations, unless the Agencies waive this requirement.

The Work plan shall be accompanied by an updated SAP, QAP and HASP, if necessary, for this phase of investigation.

Task 12.2 – Regional Investigation Implementation

Respondents shall implement the Regional Investigation Work Plan following approval or approval with modifications by the Agencies.

Respondents shall arrange for laboratory results to be transmitted by the laboratory in the format specified in Section H of this SOW within 45 days of the date the environmental sample is collected.

Task 12.3 – Regional Field Investigation Reporting

The Respondents shall provide a Regional Field Investigation Report that contains all data collected in Tasks 12.1 – 12.3 and an analysis of the data. The analysis shall include figures and tables necessary to adequately explain the results of the investigation. This report shall also include an assessment of whether Respondent would recommend that additional field investigation be conducted in the future to facilitate selection, design or implementation of drinking water or restoration response actions. Such recommendations will not be construed as an agreement by Respondents to perform any additional work pursuant to this SOW.

The Respondents shall also submit Interim Assessment Reports for each regional investigation drilling location to be transmitted within 45 days of receipt of the data transmittal, as required by Task 12.2 above, from the analytical laboratory. These reports shall contain the data generated by the assessment activities in Task 12.2 as referenced in the Work Plan.

F. INTERIM RESTORATION MEASURES

Interim Restoration Measures may be necessary in order to respond to the MTBE and other gasoline constituent contamination affecting the Charnock Sub-Basin Investigation Area in a timely, efficient and cost-effective manner.

Task 13 – Interim Restoration Measures Evaluation Work Plan

The Respondents shall provide a workplan describing how they will identify and evaluate alternatives for performing interim restoration. Alternatives to be evaluated cannot be inconsistent with the provision of interim drinking water supplies or any likely final remedy. Interim remedies to be evaluated shall include, at a minimum, the following:

- Aggressive dewatering, vapor extraction, and other cleanup methods for mass removal at contaminant source areas.
- Aggressive and sustained pumping of groundwater hot-spots.

The evaluation shall utilize the screening and evaluation framework presented in Task 6.

Task 14 – Interim Restorations Measures Evaluation Report

The Respondents shall recommend in the Interim Restoration Report, interim remedial measures to be taken within the Charnock Sub-Basin Investigation Area to begin restoration of the Charnock Sub-Basin Investigation Area.

The Respondents shall provide an Interim Restoration Measures Evaluation Report (Interim Restoration Analysis of Alternatives (AoA) Report) that contains the following:

- Description of initially identified alternatives / combination of alternatives.
- Description of alternatives screened from further evaluation
- Detailed analysis of alternatives

- Respondent's proposed interim restoration actions

As part of this report, the Respondents shall provide design and operational information for the remediation system at 3816 Tuller Avenue in Culver City.

Task 15 – Implementation of Interim Restoration Measures

The Agencies' selected alternative(s) for interim restoration will be specified in a decision document. The rationale for the selection will be included in this document.

Task 16 – Interim Restoration Measures Reassessment

Annually, the Respondents shall perform an assessment of the performance of the remediation system at 3816 Tuller Avenue in Culver City, and evaluate modifications to improve the effectiveness of the interim actions, and to account for new information and data. Respondents shall provide a report to the Agencies with the above indicated information by January 30th of each year.

G. COMMUNITY RELATIONS

The Agencies plan to provide opportunities for public involvement to parties with an interest in the Agencies' responses to the Charnock Sub-Basin MTBE and other gasoline constituent contamination.

Task 17 – Community Relations Database

Respondents shall develop a mailing list database in order to facilitate public involvement in Agencies' efforts to address the Charnock Sub-Basin MTBE and other gasoline constituent contamination. The database shall include residents, businesses, organizations, government contacts, environmental organizations, and other interested parties. To the maximum extent practicable, the mailing list should include Names, Business Names, Street Addresses, City, State, Zip Code, Phone Numbers, e-mail addresses, geographic coordinate (State Plane easting and northing), identification of previous contacts with the Agencies or Respondents related to response activities (to the extent that this information is not confidential). The database shall be compatible with Microsoft Access 97 or Microsoft Excel 97 (or an equivalent software package as approved by the Agencies).

The database shall, at a minimum, include the following contacts: (1) water customers of the Charnock Wellfields, (2) contacts within the area within one and one quarter miles from the Charnock Wellfields, (3) the area within a one quarter mile radius of potential siting of response equipment, and (4) the area within one eighth miles of the location of potential pipeline construction. Other contacts will be included in the database as set forth in the approved Work Plan developed under Task 1.1 of this SOW.

Task 18 – Fact Sheet Printing and Mailing

Respondents shall perform the mailing of fact sheets related to the Interim Response Measures. While Respondents may propose material to be included, fact sheets will be written by the Agencies and shall be mailed up to four times per year to the public, as identified by the Agencies. The fact sheets shall be mailed to the contacts in the database described in Task 17 (following approval by the Agencies of the database) within three weeks of text and layout approval by the Agencies.

Task 19 – Hosting Public Informational Meetings

The Respondents shall provide facilities for public informational meetings to be held by the Agencies. These meetings will occur approximately twice per year. The meeting facilities shall be capable of providing theater style seating for all persons attending, shall include audio/visual equipment for presentations (public address system, screen, overhead projector, LCD VGA projector, podium, and discussion panel table). The meeting facilities shall be located in the West Los Angeles, Santa Monica, and Culver City areas. The Agencies will provide a minimum of 45 days notice prior to requiring the Respondents to provide facilities for public meetings.

The Respondents shall send notices of meeting logistics to the public identified by the Agencies (e.g. the contacts identified in Task 17, as approved by the Agencies) at least 14 days prior to the meeting date.

Other Community Relations Activities:

Website: Respondents will assist posting of information on the SOW and its execution on the EPA's Charnock Project website or other appropriate website.

Targeted Local Notification for Drilling Activities: Respondents will distribute flyers to residents in the areas near drilling locations. The flyers will provide information on activities that may affect traffic or impact the community in some other way. Information on the flyers will include the nature of the work being performed and the anticipated schedule. Flyers should be submitted to the Agencies for the Agencies' approval at least one week prior to the proposed distribution date.

H. REPORTING FORMAT

AGENCIES' PROJECT COORDINATORS

Dr. Yue Rong
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Steven Linder
US EPA Region 9
75 Hawthorne Street (WST-8)
San Francisco, CA 94105

HARD COPY DISTRIBUTION

Respondents shall submit copies of all draft reports, letter reports, final technical reports, quarterly groundwater monitoring reports, and work plans in the quantities indicated, to the following (11 hard copies total):
Los Angeles Regional Water Quality Control Board Project Coordinator - 2 copies
U.S. EPA Region 9 Project Coordinator - 2 copies
U.S. EPA Region 9 Contractor - 1 copy
City of Santa Monica - 1 copy
City of Santa Monica Contractors – 2 copies
Southern California Water Company - 1 copy
Southern California Water Company Contractor – 1 copy

Department of Health Services – 1 copy

Respondents shall submit copies of all data submittals, progress reports, monthly reports, and correspondence related to implementation of the SOW in the quantities indicated, to the following (9 hard copies total):
Los Angeles Regional Water Quality Control Board Project Coordinator - 2 copies
U.S EPA Region 9 Project Coordinator - 2 copies
U.S. EPA Region 9 Contractor – 1 copy
City of Santa Monica Contractors - 2 copies
Southern California Water Company Contractor - 1 copy
Department of Health Services – 1 copy

ANALYTICAL DATA SUBMITTAL FORMAT

Respondents shall provide all analytical data collected under this SOW in the format specified on LARWQCB Lab Form 10A.

Respondent(s) shall provide data packages from the analyzing laboratory for all analytical data collected under this SOW.

Laboratory data packages shall consist of:

1) **SAMPLE RESULTS**. Includes sample ID, analyte concentration, practical quantitation limit, dates of sampling and analysis, chains of custody.
2) **QC SUMMARIES.** Includes results for method blanks, LCS, MS/MSD, duplicates, surrogates, and internal standards (individual summaries are method-dependent).

Respondents shall ensure that the following analytical data information is maintained and provided to the Agencies upon request for a minimum of 10 years after the Work is completed under this SOW:

1) **CALIBRATION AND INSTRUMENT PERFORMANCE SUMMARIES.** Includes results for initial calibrations, continuing calibrations, GC/MS tuning, ICP serial dilutions, and interference check samples (individual summaries are method-dependent).

2) **ALL RAW DATA.** Includes chromatograms, instrument print-outs, run logs, sample prep logs, calibration standard prep logs, method detection limit studies, and sample handling documentation (as appropriate).

ELECTRONIC DISTRIBUTION
All draft reports, letter reports, final technical reports, quarterly groundwater monitoring reports, work plans, data submittals, progress reports, monthly reports, and correspondence related to implementation of the SOW shall also be delivered in the electronic format specified below via e-mail (for electronic files under 1 megabyte) or via CD-ROM (for electronic files over 1 megabyte).

For files delivered via CD-ROM, Respondents shall submit copies in the quantities indicated, to the following (9 CD-ROM copies total):
Los Angeles Regional Water Quality Control Board Project Coordinator - 2 copies
U.S. EPA Region 9 Project Coordinator - 2 copies
U.S. EPA Region 9 Contractor – 1 copy
City of Santa Monica Contractors - 2 copies
Southern California Water Company Contractor - 1 copy

Department of Health Services – 1 copy

E-MAIL DELIVERY

It is required that all documents delivered by electronic mail shall follow the requirements below:

1) The header or subject line of all e-mail messages shall include the phase "Charnock Initial Regional Response Activities" or "CIRRA."
2) The text of the message shall include a description of attachments.
3) All attachments shall comply with the Electronic Format Requirements as specified in this document.
4) All messages shall be sent to all of the individuals listed in E-mail Distribution List 1, or any revised e-mail contact list subsequently provided by the Agencies.
5) All messages containing correspondence, reports or workplans shall also provide an electronic copy of the executive summary of the document to all of the individuals listed in E-mail Distribution List 2, or any revised e-mail contact list subsequently provided by the Agencies.

E-mail Distribution List 1

Name	Organization	E-mail Address
David Bacharowski	Regional Board	dbacharo@rb4.swrcb.ca.gov
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Weixing Tong	Regional Board	wtong@rb4.swrcb.ca.gov
Jay Huang	Regional Board	jhuang@rb4.swrcb.ca.gov
Steven Linder	EPA	linder.steven@epa.gov
Greg Lovato	EPA	lovato.greg@epa.gov
Carl Warren	EPA	warren.carl@epa.gov
Bobby Ojha	EPA	ojha.bobby@epa.gov
Latha Rajagopalan	EPA	rajagopalan.latha@epa.gov
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Mike Schwennesen	E&E (EPAContractor)	mschwennesen@ene.com
James Farrow	Komex (COSM Contractor)	jfarrow@losangeles.komex.com
Rey Rodriguez	H2OR2 Consultants (COSM Contractor)	mapper3d@aol.com
Toby Moore	Mission Geoscience (SCWC Contractor)	tbmoore@missiongeo.com
Heather Collins	California Department of Health Services	hcollin2@dhs.ca.gov

E-mail Distribution List 2

Name	Organization	E-mail Address
Laurie Williams	EPA	williams.laurie@epa.gov
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Denise Kruger	SCWC	dlkruger@scwater.com
Gil Borboa	COSM	gil-borboa@ci.santa-monica.ca.us
Joe Lawrence	COSM	joe-lawrence@ci.santa-monica.ca.us
Robert Saperstein	Hatch and Parent	rsaperstein@hatchparent.com

I. SCHEDULE OF COMPLIANCE

Respondents are required to submit deliverables and complete all required actions in accordance with the Schedule of Compliance (Table 2) and sections I.1. and I.2. below. Respondents shall submit all deliverables in the format specified in Section H of the SOW (with the exception of the deliverable associated with Task 8.3.). Respondents shall submit all deliverables by the final day of the specified duration. For deliverables or required actions where the due date falls on a

weekend or federal or state holiday, the due date shall be the next business day. For example, if the deliverable associated with a task has a 60 day duration, Respondents must submit the deliverable on the 60th day, unless that day falls on a weekend or federal or state holiday, in which case Respondents must submit that deliverable on the next business day. Task durations begin the day after Preceding Task/Events are completed.

Upon written approval of the Agencies, the frequency of Task 3, Monthly Technical Meetings, may be reduced.

Section I.1.

Respondents shall continue to perform the following tasks:

- Task 2 (Monthly Progress Reporting)
- Task 3 (Monthly Technical Meetings)
- Task 7.1 (Quarterly Regional Groundwater Well Gauging, Sampling and Analysis)
- Tasks 17-19 (Community Relations)

until 365 days after the last Agency approval of the final deliverable or actions associated with the following tasks:

- Task 4 (Interim Provision of Drinking Water Information Summary Report
- Task 5 (Treatability Technology Performance Report)
- Task 6.2-6.10 (Analysis of Alternatives Detailed Evaluation Report)
- Task 9 (Conceptual Flow and Transport Model Report)
- Task 10.1.1 and Task 10.1.2 (Groundwater Flow Model and Report)
- Task 11 (Current Conditions Report)
- Task 12.3 (Regional Field Investigation Report)
- Task 14 (Interim Restoration Measures Evaluation Report)
- Task 17 (Community Relations Database)

or until January 7, 2005, whichever occurs first.

Section I.2.

Respondents shall continue to submit deliverables associated with the following tasks:

- Task 7.2 (Charnock Sub-Basin Investigation Area Quarterly Groundwater Monitoring Report)
- Task 8.4 (Quarterly Updates of Database/GIS System)

for all quarterly monitoring events which they are required to perform under section I.1 above.

TABLE 2 SCHEDULE OF COMPLIANCE				
Task(s)	**Deliverable/Action**	**Duration/Due Date**		**Preceding Task/Event**
1	SOW Work Plan and Project Schedule	45 days		July 3, 2000
2	Monthly Progress Report	Monthly 15 days after the end of the month. First report due within 45 days of effective date.		July 3, 2000
3	Monthly Technical Meetings	within 10 days and once within every 30 days thereafter		Task 2
4	Interim Provision of Drinking Water Information Summary Report	90 days		July 3, 2000
5	Treatment Technology Performance Report	90 days		July 3, 2000
6.1	General Response Alternatives Identification and Screening Evaluation Letter Report	65 days		July 3, 2000
6.2-6.11	Analysis of Alternatives Detailed Evaluation Report (Drinking Water Replacement)	210 days		Agencies' Approval of Task 6.1 Deliverable
7.1	Quarterly Regional Groundwater Gauging, Sampling and Analysis	Quarter[1] Jan/Feb/Mar Apr/May/Jun Jul/Aug/Sep Oct/Nov/Dec	Due Date Third week of Jan Third week of Apr Third week of Jul Third week of Oct	*[Initial event to occur fourth week of July, 2000]*
7.2	Regional Quarterly Monitoring Results Table	Quarter[1] Jan/Feb/Mar	Due Date May 1	*[Initial QMR Table due October 15, 2000]*

TABLE 2 SCHEDULE OF COMPLIANCE				
Task(s)	**Deliverable/Action**	**Duration/Due Date**		**Preceding Task/Event**
		Apr/May/Jun Jul/Aug/Sep Oct/Nov/Dec	Aug 1 Nov 1 Feb 1	
7.3	Charnock Sub-Basin Investigation Area Quarterly Groundwater Monitoring Report	Quarter[1] Jan/Feb/Mar Apr/May/Jun Jul/Aug/Sep Oct/Nov/Dec	Due Date June 15 Sep 15 Dec 15 Mar 15	*[Initial Sub-Basin Quarterly Report due December 1, 2000]*
8.1 – 8.3	Environmental Database with GIS Enhancements on Dedicated Computers	120 days		July 3, 2000
8.4	Quarterly Updates of Database/GIS System	Quarter[1] Jan/Feb/Mar Apr/May/Jun Jul/Aug/Sep Oct/Nov/Dec	Due Date June 1 Sep 1 Dec 1 Mar 1	*[Initial GIS Quarterly Update due March 1, 2001]*
9	Conceptual Flow and Transport Model Report	45 days		July 3, 2000
10.1.1	Numerical Groundwater Flow Model	180 days		July 3, 2000
10.1.2	Groundwater Flow Modeling Report	180 days		July 3, 2000
11	Current Conditions Report	90 days		July 3, 2000
12.1	Regional Field Investigation Work Plan	30 days		July 3, 2000

TABLE 2 SCHEDULE OF COMPLIANCE			
Task(s)	**Deliverable/Action**	**Duration/Due Date**	**Preceding Task/Event**
12.2	Regional Field Investigation Field Work Completion	In accordance with Agencies' approval of Task 12.1 Deliverable	
12.3	Regional Field Investigation Report	270 days	Agencies' Approval of Task 12.1 Deliverable
	Regional Field Investigation Interim Assessment Reports	45 days	Refer to date(s) set in Agencies' Approval of Task 12.1 Deliverable
13	Interim Restoration Measures Work Plan	45 days	July 3, 2000
14	Interim Restoration Measures Evaluation Report	270 days	Agencies' Approval of Task 13 Deliverable
16	Interim Restoration Measures Reassessment	Annually/January 30th of each year	Annual Report
17	Community Relations Database	90 days	July 3, 2000
18	Fact Sheet Printing and Mailing	30 days up to 4 times per year	Receipt of Final Fact Sheet text from Agencies
19	Hosting Public Meetings	45 days up to 2 times per year	Notification from Agencies
19	Notification of Public Meetings	14 days prior to each Public Meeting, up to 2 times per year	
	Propose Laboratory for Split Sample Analysis Services Pursuant to Section XX of AOC	30 days	July 3, 2000

[1]Quarter refers to that quarter in which the groundwater monitoring event occurs.

Attachment B

Administrative Order on Consent for Initial Regional Response
Charnock Sub-Basin MTBE Contamination Site
EPA Docket No. RCRA-7003-09-2000-0003
List of Source Site Facilities

1. **PRP Site No. 1**
   Super Petrol Fuels
   Former Exxon #7-9477
   11284 Venice Boulevard
   Culver City, CA

   Responsible Party:
   Exxon

2. **PRP Site No. 4**
   AM/PM
   Arco #1246
   11181 Washington Boulevard
   Culver City, CA

   Responsible Party:
   Arco

3. **PRP Site No. 5**
   Chevron #9-2894
   11197 Washington Place
   Culver City, CA

   Responsible Party:
   Chevron

4. **PRP Site No. 6**
   Former Conoco/Kayo/Douglas
   11198 Washington Place
   Culver City, CA

   Responsible Parties:
   Conoco, Kayo, Douglas

5. **PRP Site No. 7**
   Former Unocal #3016
   11203 Washington Place
   Culver City, CA

   Responsible Party:
   Unocal

6. **PRP Site No. 8**
   Mobil #11-FX-5
   3800 Sepulveda Boulevard
   Culver City, CA

   Responsible Party:
   Mobil

Attachment B (Continued)

Administrative Order on Consent for Initial Regional Response
Charnock Sub-Basin MTBE Contamination Site
EPA Docket No. RCRA-7003-09-2000-0003
Respondents' Source Sites and Responsible Parties List*

7. **PRP Site No. 10** Chevron 3775 Sepulveda Boulevard Los Angeles, CA	Responsible Party: Chevron
8. **PRP Site No. 11** Shell 3801 Sepulveda Boulveard Culver City, CA	Responsible Party: Shell
9. **PRP Site No. 16** Tosco Unocal #4357 11280 National Boulevard Los Angeles, CA	Responsible Party: Tosco
10. **PRP Site No. 23** Thrifty Oil #247 Former Chevron #9-0392 3505 Sepulveda Boulevard Los Angeles	Responsible Parties: Thrifty, Chevron
11. **PRP Site No. 30** Great West Car Wash 11166 Venice Boulevard Los Angeles, CA	Responsible Parties: Kazuho Nishida, HLW